



blitz

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Frauen*blitz



Editorial

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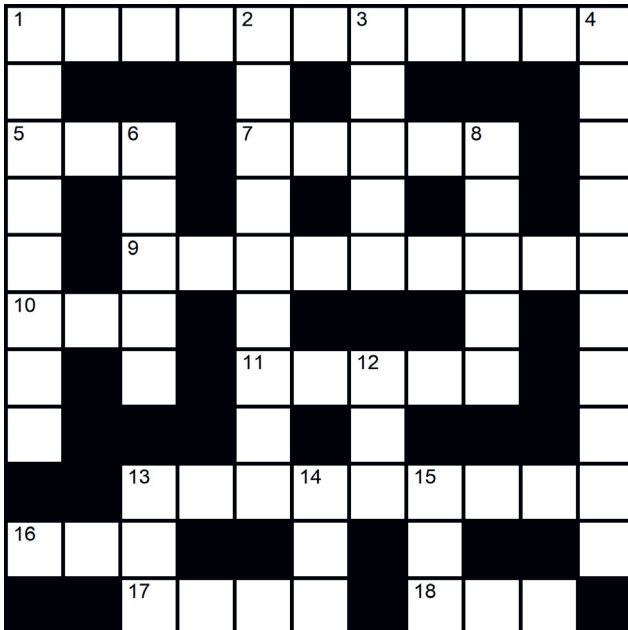
Liebe Leserinnen

Schön, dass ihr wieder den blitz lest. Unser heutiges Ausgabenthema sind Frauen und selbstverständlich Sternchen. Freut euch auf eine Auswahl von Julias Lieblingsfrauen in der Musik, ein Interview mit der Departementskoordinatorin des D-MAVT, ein Update zum PizzaHizza sowie noch vieles mehr!

Wenn ihr die «full blitz experience» möchtet, dann empfehle ich euch, das folgende Kreuzworträtsel zu lösen.

Across

- 1 Rural area (11)
- 5 "A ___ of the World" (1999) (3)
- 7 "[___ swim]" (5)
- 9 A person who lives near another (9)
- 10 "Cool" target for a yegg? (3)
- 11 "Abie's ___ Rose" (5)
- 13 "Simply a patient wolf": Lana Turner (9)
- 16 "... ___ of troubles" (3)
- 17 "...sin shall have great ___" (Ezek.30:16) (4)
- 18 "A drop of golden sun" (3)



Down

- 1 1964 phenomenon. (8)
- 2 Custom (9)
- 3 "A wonderful thing" to Shaw (5)
- 4 "Bill Nye the Science Guy" occurrence (10)
- 6 "America's Got Talent" group (5)
- 8 A child may get paid for losing it (5)
- 12 "--- Follow the Sun" (The Beatles) (3)
- 13 "Mind the ___" (3)
- 14 "Cat on a Hot ___ Roof" (3)
- 15 "... silk purse out of a sow's ___" (3)

Presidential Column

Sonja Merkle

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Well, it really is like that sometimes¹. I'll spare you another reminder of how quickly the past two weeks have flown by—you already know that from my past columns. The board trip was fantastic² Other than that, the board is handling their usual business—everything is running according to plan. I hope I'll have some tea for you in the next issue!

Take care, hardware!

Sonja

-
- 1 Thanks Roman, see the science in perspective article on page 8
 - 2 See more on Page 6. This is where all my creativity for this issue ended up.

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Der **blitz** ist die Fachzeitschrift des amiv an der ETH, welcher mehr als 4000 Mitglieder hat. Er erscheint jeden zweiten Dienstag, Autor:innen können ihre Artikel bis zum Redaktionsschluss über artikel@blitz.ethz.ch einreichen.



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Board Trip

Or 'why do we adopt the brain rot of our mates?'

Sonja Merkle

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Each semester, the board takes off for a weekend to «bond.» Last weekend, we headed to Friedrichshafen. Along with enjoying good food and drinks, we explored the city through a scavenger hunt. Fitting everything from the weekend into this short article would be impossible—and honestly, most things are only funny if you were there. But here are a few highlights:



Ferry Ride (the only bit of sunshine we saw all weekend)



amiv board

One thing that really stood out to me over the weekend was how quickly we began picking up each other's expressions and gestures. So I did a bit of research on this phenomenon for you too—because you've probably noticed it yourself at some point. When we

imitate the behavior of people around us, it's called «mimicry,» and it's a natural, ingrained part of human communication. As social beings, we seek connection and approval from others, and one way we do this is by subtly adjusting our way of speaking and



Flexing the coolest socks in front of the Dornier-Museum¹

behaving to match the people around us. By mirroring someone's style, gestures, and tone, we subconsciously signal a desire for connection and harmony. This makes us more emotionally accessible and helps the other person feel understood. Our brains also have specialized cells called mirror neurons that help us observe and replicate others' behaviors. These neurons play a big role in empathy, allowing us to «catch» others' emotions — hence the saying, «Laughter is contagious.» Mirror neurons prompt us to automatically align with others' emotional states. Evolution has also hardwired us to learn through imitation, which is why, when we spend time with certain people, we often unconsciously pick up their phrases and communication

styles. This mirroring behavior is deeply rooted in our brains, helping us build relationships and create harmony in social interactions. While it can be used intentionally to improve communication and foster understanding, it usually happens without us realizing it.

So, our bonding experience was an absolute success — stonks! Now, all 13 of us «skibidi rizzlers» have a crack in our vocabulary, and there is not much we can do about it. Für echt, für echt.

1 Want those drippy socks too? Buy them for just 3 CHF in the office!!

Science in Perspective – Die Schreibblockade

Roman Dautzenberg

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Wird uns in «Wissenschaft im Kontext» das Richtige beigebracht? I GESS not, darum stellen wir in dieser Serie wirklich relevante Forschung vor.

Wer bereits mehrmals den blitz gelesen hat, dem wird aufgefallen sein, dass eine Menge Artikel mit fragwürdigem journalistischem Mehrwert abgedruckt wird – getreu dem Motto «Die drucken eh alles» lässt so manche:r den Gedanken einfach freien Lauf. Wem das nicht gelingt¹, kämpft mit einer Schreibblockade – ein Phänomen, das von Dr. Dennis Uppel 1974 in «The unsuccessful self-treatment of a case of writer's block» beschrieben wurde.

Das Paper wurde bisher über 100 Mal zitiert, unter anderem für Replikationsstudien, Meta-Studien und Studien, die die gängigen Impact Scores hinterfragen. Das gesamte Paper ist auf der nächsten Seite abgedruckt. Ich wünsche eine spannende Lektüre!

1 LG an alle, die Präsi-Kolumne schreiben mussten

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THE UNSUCCESSFUL SELF-TREATMENT OF
A CASE OF "WRITER'S BLOCK"¹

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REFERENCES

¹Portions of this paper were not presented at the 81st Annual American Psychological Association Convention, Montreal, Canada, August 30, 1973. Reprints may be obtained from Dennis Upper, Behavior Therapy Unit, Veterans Administration Hospital, Brockton, Massachusetts 02401.

*Received 25 October 1973.
(Published without revision.)*

COMMENTS BY REVIEWER A

I have studied this manuscript very carefully with lemon juice and X-rays and have not detected a single flaw in either design or writing style. I suggest it be published without revision. Clearly it is the most concise manuscript I have ever seen—yet it contains

sufficient detail to allow other investigators to replicate Dr. Upper's failure. In comparison with the other manuscripts I get from you containing all that complicated detail, this one was a pleasure to examine. Surely we can find a place for this paper in the Journal—perhaps on the edge of a blank page.

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Fig.1: Das Paper mitsamt Bibliographie und Kommentaren.

On Speaking Up, Staying True, and Thriving in a Male-Dominated Field

An Interview with Dr. Maddalena Velonà

Andi & Julia

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While coming up with the concept of this edition, we decided to conduct an interview with one of the most influential women at ETH, the department coordinator at D-MAVT.

We (Julia and Andi, former and current chief editors) asked Dr. Maddalena Velonà about her career, her view on Department and ETH politics as a woman, who has been here for more than 20 years and about the challenges faced during this period.



Andi: Hello, welcome to the interview!

We are happy to have you. To start, could you please introduce yourself and explain to the students what you do as part of D-MAVT?

Velonà: I'm Maddalena Velonà, the coordinator of studies and, since September last year, also co-coordinator of the D-MAVT. I started working at ETH in 2003, during the transition phase from diploma to bachelor and master programs in Europe. It was unclear who could take on the coordination of studies in this new configuration; the profile was not of a typical administrative or engineering position, it required project management skills and an academic curriculum. I started with the Master admissions and grew along with the system, taking on the establishment of new study programs, the administration of bachelor, master and

doctoral students, as well as the building of the course catalogue and teaching evaluations.

Julia: As we heard, you are not a mechanical engineer. What was your journey into the field of mechanical engineering, and what did you do before?

Velonà: I studied Earth Sciences in Rome, was a dedicated student and aspired to an academic career. I earned a position as a senior scientist at a prestigious national research institution. It was there that I met my future husband, and I soon realized that living and working in the same environment wasn't ideal for me. Around the same time, I concluded that research wasn't the best

fit—I'm more pragmatic and thrive in projects that have clear, achievable endpoints. So, I decided to make a change and moved into the industrial sector, where I began working as a project manager.

Julia: Can you tell us a little about your job opportunities when you first moved to Switzerland?

Velonà: I moved here without knowing any German and with young kids, but I didn't anticipate that finding a job would be difficult. The main challenge at first was societal. People questioned why I wanted to work since my husband had a good job. I found this hard to understand. I think the problem was that my profile was unusual, being a foreign mother of three, with an academic degree but without a local network. I was told that my only job options would be in a pizzeria, laundry, or cleaning. I didn't give up and was lucky to find a position in industry that valued my Italian background along with my experience in project management. I travelled across Switzerland to install gas pipelines and I learned about geography, politics, laws and people. Once the project was completed, I had regained confidence and I applied for the position in DMAVT.

Julia: What does a typical day at work look like for you?

Velonà: Every night, I check my schedule and tasks for the following day. I'm an early riser, and while I have my espresso, I go through new emails.

Once I arrive at the office, I get right to work, although my original plan usually evolves due to unexpected issues, calls and meetings. I'm usually in the office, since I prefer face-to-face interactions. During the COVID period, I realized how important it was to stay connected and responsive, even if it was just by phone or virtual meetings. However, now that we're back in the office, I prefer discussing issues directly in person. Even though I've noticed a growing tendency for people to email or call rather than come by in person.

Julia: You've worked in the field of mechanical engineering for over 20 years, which is still very male-dominated. How has your experience been in this environment, especially as a woman?

Velonà: During my studies, even though there were only a few women, I didn't encounter any difficulties. However, when I started working with engineers in Italy, I sensed that having a young woman on the team was somewhat of a novelty. I faced more challenges after my children were born, as balancing work and family schedules became quite demanding. At ETH, I didn't experience discrimination, but I do feel that there is the distinct feminine perspective and approach that isn't always fully appreciated or embraced. While there may not be overt bias, I believe that some of the unique qualities women bring to the workplace could be more valued.

Andi: How did you navigate situations where you felt discriminated against?

Velonà: I've always fought, even if it meant facing obstacles and sometimes getting hurt. I raise my voice not only for myself but for all women, wherever I see an opportunity to improve things. I believe it's important to engage and fight for equality and use your voice to make a difference.

Julia: How do you think ETH is doing in promoting more gender equality, especially in mechanical engineering?

Velonà: The department is very open-minded. In recent years, the number of female professors has grown, and I believe they've reached a critical mass that gives women greater visibility and creates new role models to attract more female students. Additionally, both staff and students come from a wide variety of cultural backgrounds, which fosters a more respectful and inclusive work environment—not just for women, but for everyone. This diversity really enhances our workplace, encouraging openness and understanding across different perspectives.

Andi: Is there anything ETH as a whole could improve on?

Velonà: We need to keep developing a culture that values individuals and respects gender differences. This process is far from complete and must continue to improve. Personally, I believe that beyond words and

awareness campaigns, we need to keep pushing for inclusion of women in research and teaching. It's essential to create not only opportunities but also an environment where women feel fully integrated and supported to thrive in these fields. At ETH and in engineering we have to prepare graduates to be able to contribute to the future challenges of society; engineering is much more diverse than it used to be in the past.

Julia: Can you tell us your view on PAKETH?

Velonà: The Bologna reform started in 2003. After 20 years, it's time to rethink the system. During a transition, you must find a balance between traditional elements while changing others. The new generation of students, their expectations and ways to learn are different from the past; society and the growing interactions in an international environment require new profiles. This is the moment to act for the future of education and improve the skills of the graduates and PAKETH is moving in this direction. There is an effort to move PAKETH quickly, but we need to be cautious not to make mistakes, to be sure that the goals are achieved. PAKETH has to be supported by a modern and robust application system, as planned in the parallel digital campus project.

Julia: On another topic, what is your view on the tuition fee increase?

Velonà: I believe that ETH and Switzerland offer tuition fees that are very low considering the education and infrastructure we provide, in comparison with other universities in Europe or other regions of the world. The main issue isn't the increase in tuition fees, but the cost of living in Zurich, which is too high for many students.

Andi: Is there anything ETH could do about that?

Velonà: I think ETH should consider different systems, like providing financial assistance during studies that could be repaid later once students secure good jobs. But, of course, this presents new mechanisms and financial challenges for ETH.

Julia: Let's move on to another topic. Can you describe yourself using only three facts?

Velonà: I always express my thoughts, I'm not afraid and I'm solution-oriented. I give advice to everyone at any moment and even if not required. I talk a lot, but I also listen more than people expect.

Julia: Have you encountered any problems from always speaking your mind?

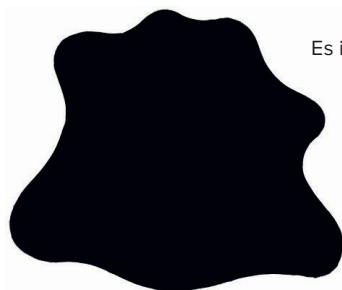
Velonà: Yes, initially. My profile and personality were a bit unusual, and people did not always understand me. I was a female coordinator in a predominantly male engineering department, wife of a professor, an

Italian "mother" – an outsider. My Italian communication style caused me to interrupt at times and language differences made it challenging to find more diplomatic words, so my opinions weren't always well-received. However, after many years, people have come to know me and even though my English or German aren't perfect, I feel that my perspective is appreciated.

Julia: Finally, is there a piece of advice or a lesson you've learned in your career that you think is valuable for students, especially female students?

Velonà: It's important to give voice to issues, not to hesitate to seek others' opinions and to ask for help when needed. We shouldn't feel alone or think that everyone else is doing better.

Pokémonrätsel



Es ist ...

The dark side of direct democracy

Roman Dautzenberg

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In this issue, I won't go into the current political system – even though the upcoming elections probably would be interesting enough. Instead, I'll actually consider the topic of the issue and look back at the recent history of women's voting rights in Switzerland¹.

Keeping in Swiss tradition to oppress women – the last execution of a witch in Europe was in Switzerland in 1782 – women can only vote on a national level since 1971². Besides obviously misogyny, a large contributing factor for this embarrassing reality is the often-praised direct democracy, as changes to the constitution need to be approved by the voting population – and with only men as politicians and in the electorate, this was very much an uphill battle. The women's rights movement in Switzerland gained attention in the late 19th century, and after the second world war first votes on the matter appeared on cantonal level – they were all rejected with large majorities.



In 1928, the Swiss Exhibition for Women's Work paraded a snail called «Women's voting rights» - this was seen as a sign of political immaturity by critics³



Poster from 1920 implying that female beauty is more important than a right to vote.

Until 1957, no real progress had been made – legal appeals were thwarted by citing customary law and political approaches were left unread: «The material for women's suffrage is in the middle drawer on the right of your desk»⁴. Also in 1957, a vote on mandatory civil service for women was held. The fitting topic led two municipalities to allow women to vote, albeit in separate ballot boxes, as their votes didn't count⁵. Later that year, first municipalities allowed women to vote and an initiative for a national voting right for women was pushed forward. This first national vote in 1959 was rejected with

nearly two thirds of votes, a main argument was: «By simply copying foreign electoral law, the proposal ignores the peculiarities of our direct referendum democracy, in which voters not only vote, but also have to constantly decide on often very difficult factual issues»⁶.



Poster from 1959 in favour of women's voting rights. «For the Women – a masculine YES»

In the sixties, slow progress was made, as Switzerland wanted to join this annoying thing called «European Convention on Human Rights»⁷, culminating in a further vote in February 1971. This time, two thirds of votes were in favour, despite vocal opposition of many being scared that this would lead to a deterioration of society. On a cantonal level, it took another 19 years and an intervention by the federal court for Appenzell

Innerrhoden for women to have full political rights everywhere and on every level in Switzerland.



The front page of the tabloid «Blick» after the vote in 1971. Classy as always.

Direct democracy is not always as good as it initially seems, as change is slow, however it is exceptional in making lasting changes – everyone needs to be convinced for change to manifest itself in laws.

- 1 Recent in this case means after 1900 roughly, as for example the city of Bern allowed women to vote from 1833 to 1887 on local matters.
- 2 on cantonal level the right to vote came at different times between 1959 and 1990
- 3 I say we should bring this sort of political activism back.
- 4 Federal Council Heinrich Häberlin in 1934 to his successor, the material had been in that drawer for 15 years
- 5 I was watching the US election while writing this, and probably took some inspiration in the wording here.
- 6 Swiss action committee against the constitutional proposal on the introduction of women's suffrage in the federal government, 1959
- 7 Switzerland wanting to join a European organization? Times were truly crazy.

Women* who Rock...

.. and Rap and Scream

Julia

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In this blitz edition, we want to focus on great women. Since books & movies are already covered, let's look into another art: music*

In the following article, I want to give a short introduction to my favourite female musicians. I tried to cover as many genres as possible and tried to pick out some lesser-known artists, but of course there are many more great musicians that I did not mention here. Feel free to send me some recommendations for other female artists! A playlist with my two favourite songs from each artist mentioned in this article can be found at the end.

Indie Rock: The Last Dinner Party

Let's start big with an all-female* indie rock band: The Last Dinner Party. They are from London, formed in 2021, and currently on their first European tour. As of this moment, they have only released one album but can already count on a big and devoted fanbase. I am definitely looking forward to whatever is coming next.

HipHop: Speech Debelle

One of my favourite rappers is Corynne Elliot, better known as Speech Debelle. Also from the UK and actively making music since 2008, Speech Debelle has released 4 Studio Albums, the last one in 2023. Aside from music,

she is also politically active and supports diverse projects about ethnic diversity, climate change, and homeless youth, as she herself used to be homeless for several years when she was about 20 years old. Aside from doing great humanitarian work, she also makes great music!

Progressive Metal / Metalcore: Jinjer

Jinjer from Ukraine is not an all-female metal band but probably has one of the best female lead metal singers that I know of. Tatiana Shmayluk can scream like no other, and I would definitely recommend watching the music video of their song Pisces to get the full experience of her abilities. The band formed in 2009 and has a new album coming up in 2025.

Hardcore Rap: The Buttres

Another HipHop artist but with a very different style compared to Speech Debelle is The Buttres. Bethany Schmitt from the USA liked to explore religious themes or radical feminism in her texts. I especially like her songs with literary references. So far, she has released two studio albums, in 2016 and 2023 respectively.

Dance / Electronic: **Miss Bashful**

Miss Bashful from Germany released her first album in 2023, the second in 2024. There was not a lot more that I could find out about her, other than that she has a lot of self-confidence. And is pretty cool.

Punk / Scream-Pop: **GRLwood**

GRLwood started as a solo project by vocalist and guitarist Rej Forester but is now joined by a drummer. They are from Kentucky and like to call their music scream-pop. With alternative punk songs, Rej sings/screams about toxic heteronormative ideologies and about dismantling the patriarchy. Definitely worth a listen, if you like alternative music.



The playlist with the songs

Sudoku

4	2	3	
		2	4
1	3		
		1	3

Sudoku einfach

	5						1	
				2	4		5	
	6	2					3	9
6		4		3	2			
	8	5		7	1		2	3
	3	7			6	9	1	
		3	7		9			
				4				
	2		1		3	4	9	7

Sudoku schwer

Personen suchen: AI-at-the-Edge

Supercomputing Systems

Michael Rusterholz

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Zusammen mit der Rega industrialisierte SCS den von der ETH (ASL) entwickelte Prototyp für den robusten Einsatz im Feld. Ziel war, den AI-Algorithmus mit grossen Mengen von realistischen Bilddaten zu trainieren. Dazu wurde die Gaming-Industrie zu Hilfe genommen.



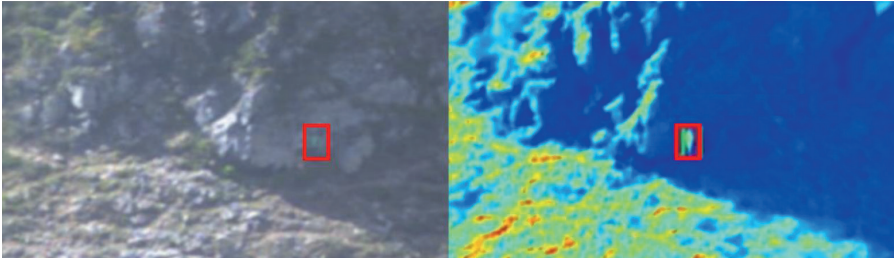
Meist werden verunfallten Personen mit Hubschraubern und Rettungskräften am Boden gesucht. Heute kommen vermehrt auch Drohnen zum Einsatz. Diese suchen autonom, energie-effizient, risikoarm und kostengünstig grosse Landstriche ab. Die Drohnen sind mit Infrarot- und RGB-Kameras ausgerüstet. Dank leistungsstarken Embedded Computern mit GPU-Beschleunigung erfolgt die Bildverarbeitung in Echtzeit auf der Drohne und nicht über ein Backendsystem. Das ist insbesondere bei schlechter Netzwerkabdeckung von Vorteil, denn so müssen nur die Resultate (Position und Bild) an die Bodenstation verschickt werden.

Training des Algorithmus

Da Menschen auf Infrarot-Bildern einfacher erkannt werden, arbeitet die Drohne mit einer Wärmebildkamera. Damit der AI-Algorithmus, hier ein Convolutional Neural Net (CNN), die Menschen auf den Bildern erkennt, wird er mit tausenden von Referenzbildern (Ground Truth) trainiert. Man kann sich gut vorstellen, wie aufwändig es ist, tausende Bilder von «verlorenen Menschen» zu erfassen und auf jedem Bild einzeln die Personen zu markieren (labeln)!

Avatare fallen lassen

Zum Glück hilft uns die Gaming Industrie: Mit Engines wie Unity oder Blender



Ein Mensch im Gebirge, aufgenommen mit RGB- (links) und IR-Kamera (rechts)

lassen sich künstliche, aber doch sehr realistisch aussehende Menschen (Avatare) erzeugen und manipulieren. Damit können die realen Trainingsdaten ergänzt (augmentiert) werden. Die künstlich erzeugten Menschen werden in verschiedenen Posen und an zufälligen Orten in ein digitalisiertes 3D-Modell der Schweiz (frei verfügbar) «eingebettet» – konkret liessen wir die Personen aus einer gewissen Höhe auf die Erde fallen. Diese künstlichen Datensätze lassen sich erweitern (augmentieren), z.B. durch Verändern der menschlichen Pose, der Beleuchtung und Wettereinflüsse der Landschaft. Das mühsame Markieren (Labeln) der Personen entfällt, da ihre Position bekannt ist. Eine Schwierigkeit bleibt noch: Game-Engines erzeugen Menschen-Modelle im RGB-Farbraum. Mit Hilfe von sogenannten Shader-Graphen wurden die RGB-

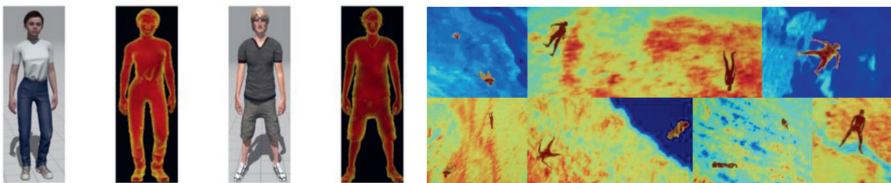
in «Infrarot-Menschen» konvertiert.

Die Präzision der Menschenerkennung wurde durch die hybriden Datensätzen um ca. 30% verbessert. Die Confidence, d.h. die Sicherheit, einen Menschen zu detektieren, wurde um 60% gesteigert. Nicht zuletzt wurde der Aufwand der Datenerfassung massiv verringert, da für diese Aufnahmen keine Personen vor Ort gehen mussten!

Supercomputing Systems AG bietet laufend Praktika und Studienarbeiten an. Wenn Du Dich für SCS interessierst, melde Dich bei Elke Curschmann (hrm@scs.ch) oder schau in unsere Website www.scs.ch/arbeiten-bei-scs/.



super computing systems



Konvertierung von RGB- zu IR-Avataren und deren Einbettung in die Landschaft

Movie of the Edition

Hidden Figures

Leander Hoffmann

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After writing this column for a little more than a year I am sure that I have never had a movie that suited that suitably. Not only does this edition's movie perfectly match the edition's theme but it also fits in the general scheme of the blitz being a magazine for aspiring engineers. The film Hidden Figures from 2016 tells the story of three Black women who made significant contributions to NASA's success during the Space Race.

Before we dive into the movie I'd like to quickly revisit the social and political situation in the US during the early sixties to give us a better understanding of the situation in which the plot of the movie takes place. Racial segregation in the United States during the 1960s was a deeply entrenched system of discrimination that kept African Americans and other minorities separate from white Americans in almost every aspect of life. This included different seats in the bus, separated sections for books in the library and segregated chapel service. At work it meant worse offices for coloured people, divided canteens, underestimation of their capabilities and the list goes on¹.

At the same time, the United States was locked in a Cold War rivalry with the Soviet Union, especially in the realm of space exploration. After the Soviets launched Sputnik in 1957, the U.S. was determined to assert its technological and scientific dominance. This led



to the creation of NASA (National Aeronautics and Space Administration) and a relentless push to send Americans into space. While NASA spared

no expense or effort, social structures slowed progress, as this movie demonstrates. Set in this era, the Plot, based on an eponymous book and based on real figures, revolves around three black women employed at the NASA Langley Research Centre. The protagonists and Friends Katherine Goble, Mary Jackson and Dorothy Vaughan work as human computers calculating the complex math needed for NASA's space missions. While white computers had bright, comfortable offices, the black computers were confined to a cramped basement.



Katherine and her coworkers

One day, Katherine is assigned a new task to help at the **space task force**, working on the first manned US space flight. This is due to her advanced Analytical geometry skills. In her new unit Katherine is the only black woman among white men making up the scientific staff. Leaving her black environment, segregation at work becomes obvious. Firstly, she must drink from separate coffee mugs, coworkers don't trust her or underestimate her skills and the closest restroom for coloured women is 800m away. Luckily her boss is rather pragmatic and only cares about quick and accurate computations

and allows Katherine to give her own input to mathematical and engineering challenges, outperforming her coworkers. After Kathrine openly complaining about her restroom situation, her boss Al Harrison abolishes restroom segregation. After some settling time in her new unit with continuous acts of discrimination by her coworkers, Katherine manages to come up with and perform calculations crucial for the first manned space mission.

Meanwhile Mary Jackson is assigned to the space capsule heat shield team, where she meets a polish-jew engineer encouraging her to further develop her skills to later apply for an engineering position. To obtain the further education, she needs to attend courses at a school only for white people. In order to overcome this barrier, she appeals court and convinces the judge, allowing her to attend the classes and finally become the first black American NASA engineer.

Dorothy on the other hand finds out about NASA installing an IBM 7090 «Supercomputer», which would render the Black women computers unemployed. However, while NASA is waiting for the computer, she lends a Fortran book from the white library section to get up to speed on operating an electrical computer, making her the IT specialist of the research centre.

The movie mainly focuses on Katherine's story and gives us also more insights on the women's private life. This

mainly includes Katherine struggles as a single mom and the day-to-day racial discriminations they have to face on a regular basis. Despite the film being based on a real story, there are a couple of historical inaccuracies². However, this mainly serves the purpose to convey difficulties due to race and gender at that time more clearly. In addition to the personal stories the film gives interesting insights into a past era of engineering. This means no digital computers but only pen and paper calculations, typewriter reports and huge real-life testing in the wind tunnel. Being an aspiring engineer myself I found this an inspirational movie that offered a perfect balance between moving stories, an interesting

plot and some old school engineering. I can recommend this movie, and I am sad that I did not know about this movie before researching for this edition³. Despite some bad movie-math and engineering inaccuracies, almost every scene of the movie gives more insight into the women's situation, therefore never becoming boring. Almost every minute of the movie contains information worth mentioning in this article. I certainly recommend watching *Hidden Figures*.

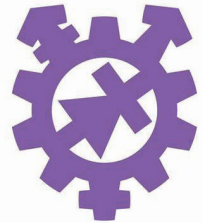
-
- 1 See more on Racial Segregation on Wikipedia
 - 2 According to Wikipedia
 - 3 Thanks to my roommate for this great recommendation

LIMES Get-Together at Kleine Freiheit

Event Review

Janine

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The LIMES Get-Together was an excellent opportunity to unwind, meet new people, and dive into interesting conversations about life at ETH and beyond. The event promised a casual, relaxed environment, and it delivered on that. Whether you are a newcomer to ETH, a experienced student or a PhD student looking to expand your network, this gathering was the perfect place to do just that. The friendly atmosphere of Kleine Freiheit made it easy to strike up conversations about all sorts of topics — from the

challenges and opportunities at ETH to personal passions and hobbies. Whether you were talking about academic life, your latest personal project, or even the best places to grab coffee in Zurich, there was no shortage of engaging discussions. The first round being on LIMES was a nice touch. If you're new to ETH or just looking for a relaxed, fun way to meet new people, this event is a fantastic choice. Looking forward to the next one!

9,0

Stärkere Bierin

Andi, Konsti, Nicolai, Pepe, Deborah

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Über die Autor*innen:

Pepe ist ein bekanntes Gesicht am CAB und zum ersten Mal beim BdA, Konstantin hat in seinem Leben noch nie ein ganzes Bier getrunken, Andi mag Starkbiere sehr und Nicolai ist zum Zeitpunkt dieses Artikels schon mit Glühwein abgefüllt. Deborah est aussi là.

Nach Wochen der Abstinenz¹ schafft es die BdA Redaktion mal wieder ein gemeinsames Bier im CAB zu trinken. Es ballert 0 Komma 9 im Hintergrund und wir giessen bernsteinfarbenen Nektar in unsere stilvollen Gläser. Die Bierin heute heisst: 9 Komma Null, von der international nicht anerkannten Brauerei 5 Komma Null aus Öttingen. Eine Bierin ist leider eine Inkorrektheit. Die Bierin enthält Zucker und Hopfenextrakt und entspricht trotz prominenter Deutscher Fahne nicht dem Reinheitsgebot. Dennoch ein

wahrlich starkes Starkbier. In dem Kommasalat von Lied, Brauerei und Bier kommt das Koma des Konsums schneller als der Schaum aus einem Feuerlöscher. Die Schriftart auf der Dose scheint Times New Roman zu sein, also so richtig Vanilla. Diese Vanille-Note fehlt dann jedoch beim Geschmack. Was man hingegen schmeckt, ist die Dose selbst, es dominieren Erinnerungen an einen Stahlwerk-Rundgang. Man riecht die deutsche Autoindustrie, das Bierin schmeckt nach Gummi und Eisen. Nach einer Minute im Glas stellt sich bereits heraus: die Bierin muss im richtigen Glas konsumiert werden, ansonsten ist die Blubbimaschine² sehr schnell ermüdet. Geschmacklich gibt es nicht viel weiteres zu berichten, es ist ein Starkbier, man schmeckt es und die Brauer haben es versäumt jeglichen Akzent im Geschmack zu setzen. So hat man einen unangenehmen Mischgeschmack aus Süsse und Alkohol im Mund. Wir haben jedoch einen anderen Vorteil entdeckt.

9,0



Heute hat sich die Redaktion aus logistischen Gründen im CAB E23 eingefunden. Hier hat es zwar nicht so grosse Boxen wie im Büro, aber auch ein Sofa³. Während die Randomdudes das E37 gerade in eine naturnahe Ausgleichslandschaft verwandeln, harzen wir beim VSETH rum. Der VSETH Vorstand hat es übrigens gerade geschafft, endlich das Bread Ale der Brauerei Oerlikon zu trinken. Die 1000 Flaschen wurden unter der repressiven Herrschaft von Oliver Klaus gekauft und waren alle schon abgelaufen.

Um den Boomerang wieder an den Ausgangspunkt zurückzubringen, es ist eine Effiziente Bierin, kostet 1.5 Franken bei Coop und hat 9 Drehzahlen. Ja, die Kritikerinnen sagen, ein PG ist billiger pro Ethanol. Doch man muss hier immer bedenken, was reingeht muss auch wieder raus. Die Toiletten am HB kosten 1 Fränkin. Mit einem einfachen Dreisatz kann man dann bestimmen, dass man ziemlich viel Alkohol für wenig Geld bei seltenen Toilettenbesuchen⁴ kriegt. Ganz zu schweigen von der reduzierten Transportbelastung durch das ganze Gewicht der Bierin⁵.



Für den Stärke Kontext vergleicht die Redaktion im Anschluss noch ein Schluck Amsterdam Maximator mit zusätzlichen 2.6 Drehzahlen. Eindeutig bringt der Maximator mehr hopfiges und mehr bitteres. Und unterm Strich ein schmackhafteres Bild für unseren Gaumen.

Bewertung [9,0 - 5,0]:

Geschmack: 2/5



Dosendesign: 3/5



Stärkefaktor: 3/5



Alkoholgehalt: 4.5/5



Total: 3.1/5



- 1 Zumindest im gemeinsamen Bier degustieren waren die Redaktionsmitgliederinnen abstinent
- 2 Co2
- 3 Ob es AIDS hat wissen wir nicht
- 4 Es ist mega unfair, dass ein Pissoir billiger als ein WC ist
- 5 Netto Null Kampagne der ETH

The Crown is Lit!

The Countdown to the Polyball begins...

Stephen Malcom

Every year at the end of November, KOSTA, once a commission of the VSETH, now a public foundation, hosts the Polyball. As the largest decorated ball in Europe (at least according to them) it occupies the ETH main building and the adjacent MM-building under the Polyterrasse. But in order to make it the largest DECORATED ball, a lot of work has to be done in preparation...

Starting five weeks before the opening of the Polyball (on Saturday, the 30th of November), members of KOSTA and volunteers set up the «Polyballwerkstatt» in the northeastern corner of the ETH main building in the bicycle garage. The bikes that were left behind were gently removed (into the small park at the corner's edge behind the fountain). The garage (referred to by KOSTA as TöGa, short for Töff Garage, i.e. motorbike garage) was cleaned, lined with tarpaulins, and stocked with all the things needed to cut, glue, paint, put on rolls and store the gigantic paintings which will soon hang everywhere in the main building. A temporary roof was constructed directly on top of the TöGa, spanning the gap between the parapet there and the wall of the ETH main building, thus protecting the entry of the newly established «Polyballwerkstatt» from all kinds of weather.

Also part of the setup was a big waste bin next to the TöGa, as well as lighting and shelving in front it. In-between, the helpers were served an excellent pumpkin soup lovingly prepared by



As it was... (Picture by Leo Fent)



Hectolitres of paint for thousands of squaremetres of canvas (Picture by Leo Fent)



Rolls to be filled (Picture by Leo Fent)

the KOSTA catering team (although more than 1 hour late). Did you know that each year, the «Crown» on top of the ETH main building's dome is installed by the Elektro team of KOSTA? Well, now you know!



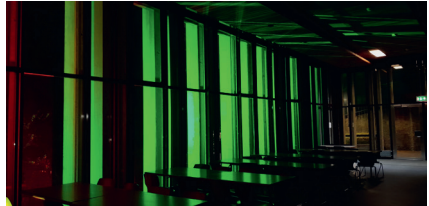
A little KOSTA Siesta (Picture by Leo Fent)

The members of the Elektro-Team handle almost all the electric installations as well as custom lightning for Polyball (apart from the electrical installations for the band stages). They are also the group in which I, the author, am currently volunteering. Their work started the morning after the crown installation on Monday, the 28th of October, with the first of the equipment already transported to the main building where a temporary storage space was established. For the next five weeks, this will be our base of operations. In the time in-between then and now, we will have installed the exterior lights in

front of the main building, experimented with different illumination methods for the Polymensa and, of course, re-organised our storage (again), so we don't trip over everything. After all, a well-organized storage is a must to work through an 11 A4-page-checklist in 5 weeks.



The newly delivered Elektro equipment



An Aurora borealis? At this time of year? At this time of day? In this part of the country? Localized entirely within the Polymensa?

Meanwhile, the Deko (short for decorations) team and its helpers painted and installed the first of their four large courtyard wall paintings (13m high, 17m wide) on the western wall of the southern courtyard. In order to paint an area so large they had to continuously roll up the painted sections of the canvas and glue together the unpainted strips due to the limited space in the workshop. And three more to go – one

each weekend. In-between there are also kilometers of paper that need to be painted to eventually walk, dance and party, as if moving between humans and divinities!

If you want to know more about KOSTA or the Polyball, you can find further information on their websites, <https://www.kosta.ch/> and <https://polyball.ch/>.



Step by step the Aztec temple arises from the ground (Picture by KOSTA)

See you there!

The author is a volunteer for the Polyball 2024 but is not officially affiliated with KOSTA.



Sudoku Lösung

4	2	3	1
3	1	2	4
1	3	4	2
2	4	1	3

Sudoku einfach

3	5	8	6	9	7	2	4	1
1	7	9	3	2	4	8	6	5
4	6	2	8	1	5	7	3	9
6	1	4	9	3	2	5	7	8
9	8	5	4	7	1	6	2	3
2	3	7	5	8	6	9	1	4
5	4	3	7	6	9	1	8	2
7	9	1	2	4	8	3	5	6
8	2	6	1	5	3	4	9	7

Sudoku schwer

PizzaHizza hitzt heisse Pizza

Leistungselektronik und so.... mega geil

Beate Astli

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In einer eurer unzähligen Analysis Vorlesungen ist jede von euch bereits abgeschweift und hat über Gott und die Welt nachgedacht und sich dabei gefragt, was denn Beate Astli heiss macht. Mhhhh....

Nein es sind nicht die Männer sondern Leistungselektronik. Ja genau, jegliche Art von Konverter (AC zu DC, DC zu DC oder einfach nur die Schnelladestation für den Tesla) es gibt nichts besseres was ihr Herz höher schlagen lässt. Somit ist dieser Artikel über Leistungselektronik, spezifischer über die Leistungselektronik des PizzaHizza.



Initial Tests with the PizzaHizza HizzaPlatte

Die jungen unter euch fragen sich sicher was der PizzaHizza denn ist. Es ist ein Bastli-Projekt das bereits vor 2 Jahren ins Leben gerufen wurde. Dabei wurde in einen Alu-Block eine Vertiefung gefräst, sodass ein Heizele-

ment reinpasst, man so den Alu-Block mit seiner thermischen Masse aufheizen kann und darauf Pizza brüzzeln kann (richtig dumme Idee, aber ich hatte Bock zu fräsen). Wie die ersten Tests gezeigt haben, klappt das auch. Nur blöd, dass die spontan eingesetzten Kabel, der 3kW Leistung nicht standhalten konnten und als Schwachpunkt dahingeflossen sind. Die Pizza war natürlich bueno!

Somit kommt es, dass ich mich nun um die Leistungselektronik sowie deren Regelung des PizzaHizza kümmern darf und euch hier mein Konzept präsentiere. Das Ziel ist, eine Lösung zu finden, mit der man den PizzaHizza sicher und zuverlässig betreiben kann.

Um den PizzaHizza und die Leistung zu regeln, haben wir uns für die Wellenpaketregelung entschieden, dabei werden einzelne Wellenpakete der



Nicht alle haben es überlebt

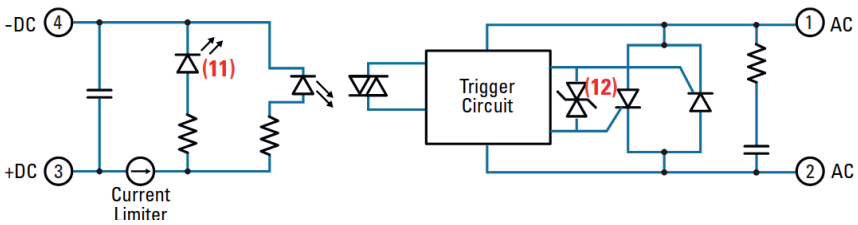
AC-Spannung durchgelassen und andere nicht. Wobei jeweils beim Nulldurchgang geschaltet wird. Also im Grunde AC-PWM, die Schaltzeitpunkte sind einfach durch den Nulldurchgang des Wechselstroms diskretisiert. Dies ist netzschonend (keine harten Flanken) und verursacht geringe Schaltverluste. Also ideal für unsere Regelung.

Nun fragt sich Frau Elektrotechnik sicher, wie man das denn anstellt.





Dies ist ganz einfach, mit einem Nulldurchgang schaltenden Halbleiterrelais kann eine einfache Schaltung aufgebaut werden. Wie im Schaltplan gezeigt wird, muss man ein Schaltsignal geben und das Halbleiterrelais schaltet ein, sobald die Wechselspannung seinen Nulldurchgang hat. Das selbe ist beim Ausschalten der Fall.

Für das entsprechende Kleingeld erhält man auch ein Bauteil mit entsprechenden Spezifikationen (wir wollen viel Strom).

In einem nächsten Schritt wird ein erster Circuit aufgebaut und getestet (Die Frage ist: Wird die Pizza heiss, ohne dass jemand einen Elektroschock abbekommt?). In einem weiteren Schritt



An den DC-Klemmen wird eine Steuerspannung von 5Volt angelegt und so die Leistung geregelt

<p>H12D4850</p> 	<p>1613839</p> <p> Data Sheet</p> <p> RoHS</p>	<p>SENSATA/CRYDOM</p> <ul style="list-style-type: none"> • Halbleiterrelais • SPST-NO • 50 A • 530 VAC • Panelmontage • Schraubbar • Nulldurchgang 	<p></p> <p>340 auf Lager</p>	<p>Stück</p>	<p>1+ 63,66 €</p> <p>5+ 51,40 €</p> <p>10+ 48,71 €</p>
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Was es so auf dem Markt gibt

kommt der sensing Teil der Schaltung dazu, wobei wir einen neuartigen Algorithmus präsentieren werden, der die Kombination von Multi-Heating Sources und einem Sensor Fusion Network ausnutzt, um die Pizza besser zu braten, verglichen zu konventionellen Pizzaöfen. Daraus werden wir natürlich ein Paper machen und uns in die lange Reihe der Pizza-Forschenden einreihen. Wir freuen uns darauf, euch in den kommenden blitz Ausgaben auf unserem Weg dahin laufend upzudaten.

Pokémonrätsel Lösung



Determination of pizzas quality and acceptability by physic-mechanical tests

David Mastrascusa ¹, Patricia Vázquez-Villegas ¹, José Ignacio Huertas ¹, Esther Pérez-Carrillo ¹, Roberto Nevarez ²

Affiliations + expand

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Abstract

The growing need for developing more efficient and sustainable technologies for the processing of bakery products leads to the need for replacing the current subjective methodology by an instrumental method to evaluate the quality of these products. In this work, relevant physic characteristics that define the quality and acceptability of pizzas were identified, and instrumental methods were established to evaluate them. Cooking quality of the pizza base was established through rapid visco analysis and scanning electron microscopy. The physic attributes considered of the pizza base with and without toppings were final cooking temperature, specific volume, water content, color, and texture. Aiming to validate the applicability of the instrumental methods, we prepared well-accepted pizzas, using three different oven technologies, and carried out a sensory test with 60 non-trained panelists. We observed that the proposed method is sensitive enough to identify differences in the quality of pizzas produced by the oven technologies. However, those variations were not enough to be recognized by participants of the sensory panel. The values of pizza attributes obtained in this work could be used as a baseline of comparison for pizzas produced by new and more efficient cooking technologies.

Pizza Publication

Wie man das Polykum bestellt

Nicolai Drapp

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Das Polykum, allgemein auch unter dem Namen «Brokkolikum» oder «Altpapier» bekannt ist die Verbandszeitschrift des VSETH. Bis letztes Semester wurde dieses Magazin ungefragt an alle Studis verschickt. Doch dies hat sich nun geändert.

Werte Leserinnen

Als begeisterter Mensch mit Augen gehört Lesen zu einer meiner Lieblingstätigkeiten. Und neben qualitativ hochwertigem Investigativjournalismus¹ und nervenkitzelnden Thrillern lese ich auch ab und an eine Zeitschrift. Es gehört nunmal zum akademischen Stand, dass man informiert ist über die wirklich grossen Dinge. Öffnet man sie, so stehen darin Dinge. Meistens machen einen die Dinge wütend², doch es gibt auch sehr lustige Lokalnachrichten.

Das Printmedium

Eine Zeitschrift gibt Wärme für Penner im Park und hilft beim Anzünden eines Lagerfeuers. Doch dazu ist wichtig, dass man das Lesematerial auch in der Hand halten kann. Ein Stück Papier ist in meinen Augen einfach etwas besseres, als nur ein PDF. Der blitz ist hier das Aushängeschild des amiv, schön gedruckt und gelayoutet. Gehen wir etwas tiefer in der Qualitätsleiter finden wir Ausgaben wie die «Zürcher Studierendenzzeitung», eine wirkliche Zeitung die man lesen kann. Die Themen dort sind aber meist etwas entfernt von uns Studis. Um dort zu punkten machen wir einen Ausflug ins CAB. Der VAMP hat meistens ein gutes Layout, manchmal auch gute Texte. Visionen habe ich in meinem Leben allgemein keine, die Motivation dort habe ich schon lange verloren. Das spie

gelt sich auch im Vereinsmagazin des VIS wieder, für viel mehr als schlechten Humor reicht es oft nicht³. Von anderen Fachvereinen hatte ich leider keine Exemplare zum Vergleich zur Hand. Mit mehr oder weniger Verlust schaffen es die oben genannten Magazine, regelmässig zu drucken.

Der Fall Polykum

Natürlich hat auch der VSETH ein Magazin, schliesslich will man ja informiert bleiben. Doch während man bis anhin immer wieder darauf verweisen musste, wie man das Polykum endlich nicht mehr im Briefkasten hat, ist dies nun anders. Wie die Zeugen Jehovas wurde das A4-Magazin vor den Türen der ahnungslosen Erstis gefunden. Aus finanziellen und logistischen Gründen hat man sich nun entschieden, die Leute zu fragen ob sie das denn auch wirklich wollen. Da das mit dem Versand wohl noch nicht so eine beliebte Alternative ist, weise ich euch darauf hin, dass ihr es eben bestellen könnt. Ihr kriegt dann endlich wieder etwas, das ihr unter den Küchentisch schieben könnt, damit der gerade steht.

- 1 Siehe «Bier der Ausgabe»
- 2 Dieser Text wurde am 07.11. verfasst, also einen Tag nach dem Fall der USA sowie Deutschlands
- 3 Pöbelt ruhig weiter gegen den blitz, wir stehen drauf

Book of the Edition

The Bell Jar – Sylvia Plath

Julia Holenstein

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A story about mental health, identity, and the overwhelming pressure of womanhood. Just what you need when you are bored during an Analysis 3 lecture and flip through the newest edition of the blitz a bit to get some lighthearted distraction. And it's even semi-autobiographical!

Sylvia Plath herself was a bit of an enigma. Born in Boston 1932, she was a prodigy, winning scholarships and awards throughout her youth. Her first poem was published when she was eight, and many others followed. But behind her academic success, she struggled with depression from an early age onward. By the time she entered Smith College, a private women's liberal arts college in Massachusetts, she had supposedly already tried to take her own life once. This is also later mirrored in the protagonist's story of *The Bell Jar*.

Later in life, she got a highly desired position as a guest editor at a magazine in New York, and spent a month there. Many of the events that took place during this period are mentioned in *The Bell Jar*, and most of them show how bad her mental state was.

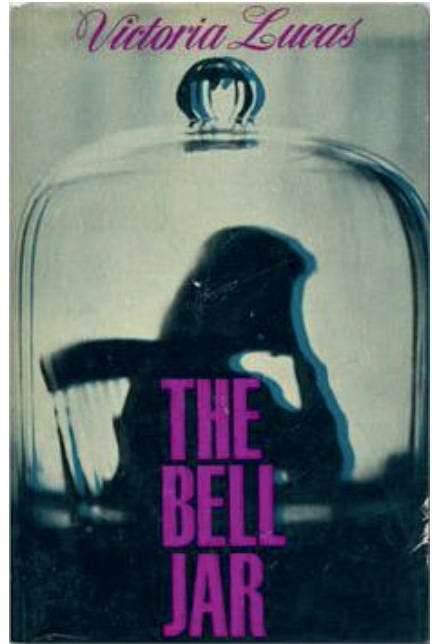
After struggling overwhelmingly with her depression, Plath underwent Electroconvulsive therapy¹ which was the standard treatment in the 50s. She later committed her first 'official' suicide attempt by taking her mother's sleeping pills. Plath spent additional time in psychiatric care undergoing even more



treatment, but eventually managed to go back to college. After college, Plath went on to study at Cambridge University where she met and eventually married British poet Ted Hughes. Their relationship was passionate and productive—they inspired each other's work and wrote some of their best-known poetry during this time. But after a miscarriage, another suicide attempt by Plath and the revelation that her husband had an affair, the couple split up.

After that, Sylvia Plath began writing most of her well-known works. She also wrote aforementioned *The Bell Jar* after their divorce, her only ever novel. It is semi-autobiographical and published under the Pen Name Victoria Lucas. Many events in the novel mirror Plath's own experiences, including her time in New York, her depression, and her stay in a mental institution, with just the names of the characters changed. Sadly, she wouldn't live to see the book's impact; A month after *The Bell Jar* was released in the UK she took her own life. Today, she's remembered as a genius whose works continue to resonate, especially with readers who see themselves in her characters.

The plot of *The Bell Jar* follows Esther Greenwood, a talented young woman who seems to have everything going for her. The story opens with Esther in New York City for a coveted summer internship at a fashion magazine, an opportunity that many would envy. She's surround-



The cover of the first edition, published under Plath's pseudonym Victoria Lucas

dergoes psychiatric treatments, including electroshock therapy, which only deepens her trauma at first. Eventually, with help, Esther starts to navigate her way out of despair, though her recovery is fragile. The novel closes with a mix of hope and uncertainty, as she steps forward without knowing if freedom from the «bell jar» will last.

Even though Plath drew from her own life, *The Bell Jar* doesn't read like a memoir. You might expect a book like this to be intense and heavy to read, but Plath's writing is surprisingly light on its feet, sarcastic and sometimes darkly funny. In the novel, Esther is describing everything from the stifling heat of a New York summer to the sterile chill of



the mental hospital. Plath doesn't give us a sanitised view of Esther's world; instead, we see the dissatisfaction and the small, brutal moments that make up her descent. But Plath is most known for her use of metaphors. Esther's feeling of suffocation—the sense of being trapped under a bell jar, with her vision and emotions distorted by glass—captures the isolation of mental illness.

Aside from the bell jar, the fig tree is another commonly mentioned metaphor in the book. In the story, it reads as follows: *«I saw my life branching out before me like the green fig tree in the story. From the tip of every branch, like a fat purple fig, a wonderful future beckoned and winked. One fig was a husband and a happy home and children, and another fig was a famous poet and another fig was a brilliant professor, and another fig [...] I saw myself sitting in the crotch of this fig tree, starving to death, just because I couldn't make up my mind which of the figs I would choose. I wanted each and every one of them, but choosing one meant losing all the rest, and, as I sat there, unable to decide, the figs began to wrinkle and go black, and, one by one, they plopped to the ground at my feet.»*

In this quote, Sylvia Plath (or Esther) describes the suffocating feeling of indecision. By trying to keep every door open and every path available, she is afraid to make a choice that will decide on her future. Knowing you can only ever move forward and every decision might be the wrong one. But if you don't choose, eventually all the figs will rot and fall

down, leaving you with nothing.

The Bell Jar is about mental illness, but also about the lack of freedom given to women in the 1950s. In the 50s, a woman's options were pretty clear: she could be a wife, a mother, or, if she was particularly ambitious, maybe a secretary. But Esther wants more, and her ambition makes her feel torn between the life she wants and the life that's expected from her. As she tries to navigate these choices, Esther feels increasingly detached. Her mental health deteriorates, but instead of finding support, she encounters coldness, judgment, and a rigid medical system. The scenes of her treatment show how misunderstood and mistreated mental illness was in Plath's time. And while Esther ultimately finds a kind of stability, the ending leaves her future open. The bell jar may have lifted, but it could easily descend again—a reminder of the ongoing struggle that many face with mental illness.

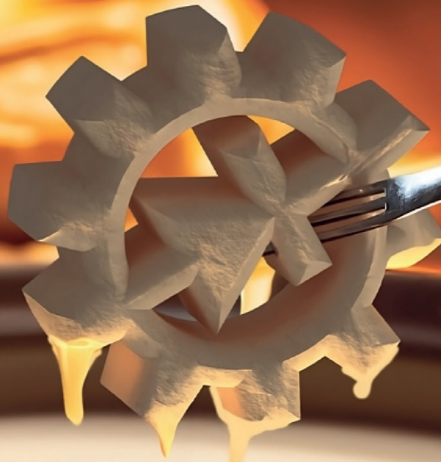
Although *The Bell Jar* wasn't widely read when it first came out, it is now as popular as ever. Plath's depiction of a mind at war with itself, her critique of societal norms, and her reflections on identity and freedom still resonate today. It's a novel that reminds us of the value of introspection, as well as the importance of understanding, both of ourselves and of others. And all that in about 200 pages.

-
1. Psychiatric treatment during which a seizure is electrically induced by applying 70 to 120 volts externally to the patient's head

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