

# Informatikstudium an der ETH Zürich

Wieso tut man sich das überhaupt an?

# Nachteil

## keine Ferien

- ▶ Praktisch keine Ferien für ~5 Jahre (wird sich bald bald ändern!)
    - ▶ Herbstsemester (14 Wochen)
      - ▶ KW 38 - 51
    - ▶ Winterprüfungssession (4 Wochen)
      - ▶ KW 4 - 7
    - ▶ “Osterferienferien”: 1 Woche
  - ▶ Frühjahrssemester (15 Wochen)
    - ▶ KW 8 - 22
  - ▶ Sommerprüfungssession (4 Wochen)
    - ▶ KW 32 - 35
  - ▶ Herbstferien: 2 Wochen
- ▶ “Die vorlesungsfreie Zeit ist für die Prüfungsvorbereitungen und die Prüfungssessionen vorgesehen” (Quelle)

# Nachteil

## keine Freizeit

- ▶ Geistig hochanspruchsvolle Vorlesungen
- ▶ Mental/psychisch extrem erschöpfendes Studium
- ▶ Sehr grosser Zeitaufwand unter dem Semester
- ▶ Noch grösserer Zeitaufwand in der Lernphase

# Nachteil

## kein Geld

- ▶ An der ETH zu studieren kostet nicht viel, aber man verdient nichts
  - ▶ Wahrscheinlich sogar für mehr als 5 Jahre, denn bereits “Regelstudienzeit” ist eine Leistung!
- ▶ Wohnungsmarkt in Zürich ist die Hölle (SRF-Artikel)
- ▶ Nebenjobs im Bachelor sind nicht gut mit Studium vereinbar
  - ▶ Persönliche Empfehlung: Lieblingskurs sehr gut bestehen und Teaching Assistant werden — zahlt gut und macht teils auch Spass!

# Nachteil der "Campus"

- ▶ Selbst in der schönsten Stadt der Welt ist der "urbane" Campus (Zentrum, nicht der Campus Hönggerberg) recht lahm
- ▶ Zu wenig Platz für alle Studierenden

# Nachteil

## wenig "Industrie"-Praxis

- ▶ **Aber** gewisse Studiengänge (bspw. Maschineningenieurwissenschaften) haben Praktika und sehr praxisnahe Möglichkeiten für extrem coole (Semester)projekte/Bachelorarbeiten



aris (Akademische Raumfahrt Initiative Schweiz)



AMZ (Academic Motorsports Club Zurich)

Video "0-100 in less than a second. And I'm driving." by Tom Scott



Viele weitere Möglichkeiten

# Vorteile während des Studiums

**ASVZ, Fachvereine, Teaching Assistants, Mitstudierende**

- ▶ **ASVZ (Akademischer Sportverband Zürich)**

- ▶ Sehr viele Sportarten zum Ausprobieren und für einen physischen Ausgleich

- ▶ **Fachvereine**

- ▶ Geile Parties, literweise Alkohol, tolle Leute

- ▶ **Teaching Assistants**

- ▶ Viel persönlicher Kontakt zu älteren Semestern

- ▶ **Mitstudierende**

- ▶ “The real Vorteil are the friends you make along the way ✨”

# Vorteile nach dem Studium

## ein ETH-Abschluss!

- ▶ Sehr hoch angesehener Abschluss
- ▶ Gute Ausbildungsmöglichkeiten in verschiedensten Bereichen
- ▶ Guter Zugang zu Akademie
- ▶ Gute Übergangsmöglichkeiten in die Industrie
- ▶ Hohes Start-up-Potential (ETH-Spin-offs)
  - ▶ Student Project House für eigene Projekte während des Studiums

# Informatik != Informatik

## Masterstudiengänge an der ETH

### Master Computer Science (Spezialisierungen)

 Data Management Systems

 Machine Intelligence

 Secure and Reliable Systems

 Visual and Interactive Computing

 Theoretical Computer Science

### Master Data Science

### Master Cyber Security

### Master in Robotics, Systems and Control

### Master in Computational Biology & Bioinformatics

TI - Serie 6

28/30 nice!

Exercise 16

(a) **To show:** It is possible to fit three buses with countably infinite<sup>1</sup> new guest into an already fully occupied Hilbert hotel such that every guest from bus 1 gets a room with an odd room number, and every guest from bus 2 has at least one neighbour from bus 2.

**Proof:** We assign the rooms as follows (numeration starting at 1):

**The previous guests** First, move each current resident of the hotel room with the number  $i$  to the room with number

$$r_0(i) := 4i \quad \checkmark$$

and give them a voucher for a free drink with endless refills at the hotel bar for the inconveniences. 😊

**Bus 1** Tell the guests from bus 1 to form a line and then tell the person at the  $i$ 'th position in the queue to go to room

$$r_1(i) := (i - 1) \cdot 8 + 1. \quad \checkmark$$

**Bus 2** Tell the guests from bus 2 to form a line and then tell the people at the  $i$ 'th position in the queue to go to room

$$r_2(i) := (i - 1 + (i \bmod 2)) \cdot 2 + 1 - (i \bmod 2) \quad \checkmark$$

**Bus 3** Tell the guests from bus 3 to form a line and then tell the person at the  $i$ 'th position in the queue to go to room

$$r_3(i) := (i - 1) \cdot 8 + 5. \quad \checkmark$$

**Note** Since there are infinitely many people on each bus, the porter has to switch buses every  $p \in \mathbb{N}$  people and must not wait for one bus to empty out, since that would take literally forever. Especially with all these slow ppl taking ages removing their

The rooms are now filled as follows, where the top row indicates the room numbers and the bottom number indicates the origin of the guest, with 0 being code for the previous guests and  $k$  for a guest from bus  $k$ .

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	...
1	2	2	0	3	2	2	0	1	2	2	0	3	2	2	0	...

Now we show that all of the guests' requirements are met.

**The previous guests** Since there are infinitely many rooms which are divisible by 4, all of the current residents can stay in the hotel. We must make sure, that

<sup>1</sup>In the task it only says "infinite", I'm assuming it was meant to say countably infinite because it won't for for any other (bigger) infinity, i.e.  $\aleph_i$  for  $i > 0$ .

form

training 😊



Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

Parallel Programming  
Assignment 4: Parallel Models  
Spring Semester 2024

Assigned on: 13.03.2024

Due by: (Wednesday Exercise) 18.03.2024  
(Friday Exercise) 20.03.2024

Task 1 – Pipelining

Bob, Mary, John and Alice share a flat. In this flat they share a washing machine, a dryer and an ironing board. The washing machine takes 50 minutes for one wash cycle. The dryer takes 90 minutes. Everyone of them takes roughly 15 minutes to iron their laundry.

a) Assuming they would do their laundry in strictly sequential order (one person starts only after the other finished ironing), calculate how long would it take to finish the laundry.

**Answer:** They would take  $(50 + 90 + 15) * 4 = 620$  minutes as illustrated in Figure 1.

Washing - 50 min, Dryer - 90 min, Iron - 15 min



Figure 1: Pipeline executed strictly in sequential order.

b) Are there any better options? If yes, can you describe them and calculate the improved laundry time? Further, determine whether this pipeline is balanced or unbalanced.

**Answer:**  $(50 + (90 * 4) + 15)$  minutes = 425 Minutes  
Assuming that three tasks are going in parallel, the speedup is:  $S_3 = T_1/T_3 = 620/425 = 1.46$  as illustrated in Figure 2. The pipeline is unbalanced as the stages of the pipeline have different length of time.

Washing - 50 min, Dryer - 90 min, Iron - 15 min



Figure 2: Pipeline executed in parallel.

c) Can you devise a better strategy assuming that the four roommates bought another dryer? If yes, calculate the new laundry time. Further, determine whether such an improved pipeline is balanced or unbalanced and calculate the pipeline throughput as well as latency.

# Informatik nach dem Studium

## Ab an die Arbeit

19 companies hiring

25 total jobs ↓

Entry Level Software Engineer Jobs in Switzerland

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### Arl



#### Wipro

Tech services and consulting.

222,000 employees Fr 22.87B

**Data Engineer** 2 months ago

Geneva, Geneva, Switzerland

**Data Engineer** 2 months ago

Zurich, Zurich, Switzerland

[View all open roles >](#)



#### Baxter International

Medical products manufacturer.

48,000 employees Fr 23.5B

**Software Developer - Campocologno** a month ago

Campocologno, Graubünden, Switzerland · On-site

[View all open roles >](#)



#### Open Systems

MDR cybersecurity with outcomes.

450 employees

## Software Developer 3

Oracle · 19 days ago · Zurich, Zurich, Switzerland

[Apply Now](#)

**Fr 131,823** (base salary estimate from Levels.fyi)

Levels.fyi's Total Compensation estimates by level for Software Engineers at Oracle. The most likely levels for this role are highlighted below in blue.

IC-1 Fr 45.5K

IC-2 Fr 148.2K

IC-3 **Fr 171.1K**

[Benefits](#) [Promote](#)

### Job Description

Design, develop, troubleshoot and debug software programs for databases, applications, tools, networks etc. As a member of the software engineering division, you will assist in defining and developing software for tasks associated with the developing, debugging or designing of software applications or operating systems. Provide technical leadership to other software developers. Specify, design and implement modest changes to existing software architecture to meet changing needs. Duties and tasks are varied and complex needing independent judgment. Fully competent in own area of expertise. May have project lead role and or supervise lower level personnel. BS or MS degree or equivalent experience relevant to functional area. 4 years of software engineering or related experience.

Career Level - IC3

### Responsibilities

We need expertise in the following (or related) areas:

- Experienced in JavaScript/TypeScript
- Experienced in React/Preact
- Familiar with test frameworks such as Jest, Puppeteer
- Familiar with working on OCI Console plugins (preferred)

### vel)

# H zürich

# Informatik nach dem Studium

## Weiterlernen und forschen



### Forschungsmöglichkeiten nach dem Studium?

- ▶ Sehr spezifisch und wechselt ständig
- ▶ Am besten anschauen sobald es soweit ist

**Vielen Dank für eure  
Aufmerksamkeit ✨**



[Link zu den Slides](#)