# Tim Kamsma

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## Education

2019–2022 **MSc Theoretical Physics**, *Utrecht University*
- Cum Laude, GPA 4.0
- Honours double MSc programme

2019–2022 **MSc Mathematical Sciences**, *Utrecht University*
- Cum Laude, GPA 4.0
- Honours double MSc programme
- Track: Applied Mathematics, Complex Systems and Scientific Computing

2016–2019 **BSc physics and astrophysics**, *Utrecht University*
- Cum Laude, GPA 4.0

2016–2019 **BSc mathematics**, *Utrecht University*
- Cum Laude, GPA 4.0

2010–2016 **Gymnasium, N&G and N&T profile (natural sciences)**, *KSG De Breul*, Zeist
- Cum Laude
- Best Science Student award

## Experience

### Research

2022 – Present **PhD Candidate Theoretical Physics & Mathematics**, *Utrecht University*, Institute for Theoretical Physics & Mathematical Institute
- Received a unique personal grant for my own proposal, allowing me to run my own research.
- Instigated Neuromorphic Computing research at Utrecht University.
- Supervised numerous students, leading to exciting projects with some ending up as co-authors.
- Became a representative for research at Utrecht University, while also contributing to outreach at primary schools, department visitations, podcasts, and more.

2025 – Present **Visiting PhD Student**, *University of Cambridge*, Cambridge
- Set up a new research collaboration based on contacts I got to know in 2022.

2022 **Visiting Graduate Student**, *University of Cambridge*, Cambridge
- I was offered a fully funded PhD position with a Harding Distinguished Postgraduate Scholarship.

2019 **Research Intern**, *Netherlands Institute for Neuroscience*, Amsterdam
- My work formed the basis for an exciting ongoing research project.

### Teaching

2013–present **Private Tutor**
I am regularly hired to be a private tutor in science courses.

2017–2021 **Teaching Assistant**, *Utrecht University*
I oversaw problem sessions of physics and mathematics courses and supported the organisation of the course.

2017–2021 **Teaching Assistant**, *SSL*, Leiden
I guided high school students during three day long intensive training sessions for their finals.

## Papers and talks

### First-author papers

September 12th 2025 **Echo state and band-pass networks with aqueous memristors: leaky reservoir computing with a leaky substrate**, *Chaos*, Vol. 35, 093133

March 31st 2025 **Chemically Regulated Conical Channel Synapse for Neuromorphic and Sensing Applications**, *Physical Review Research*, Vol. 7, Issue 1

July 27th 2024 **A simple mathematical theory for Simple Volatile Memristors and their spiking circuits**, *Chaos, Solitons & Fractals*, Vol. 186

April 30th 2024 **Advanced iontronic spiking modes with multiscale diffusive dynamics in a fluidic circuit**, *Neuromorphic Computing and Engineering*, Vol. 4, 024003

April 30th 2024 **Brain-inspired computing with fluidic iontronic nanochannels**, *Proceedings of the National Academy of Sciences*, Vol. 121, Issue 18

July 5th 2023 **Unveiling the capabilities of bipolar conical channels in neuromorphic iontronics**, *Faraday Discussions*, Vol. 246, 125-140

June 26th 2023 **Iontronic Neuromorphic Signaling with Conical Microfluidic Memristors**, *Physical Review Letters*, Vol. 130, Issue 26

### (Some of my) Talks

Sep. 2025 **Neuromorphic Computing Netherlands**, *University of Delft, Plenary Speaker*

Jan. 2025 **NWO Physics**, *Veldhoven*, Speaker at the Dutch national Physics conference in Veldhoven

Sep. 2024 **Liquid Matter Conference**, *Mainz*, Speaker at the large international LMC

Jan. 2024 **NWO Physics**, *Veldhoven*, Speaker at the Dutch national Physics conference in Veldhoven

Nov. 2023 **QBio Symposium, Invited**, *Utrecht University, Plenary Speaker*

June 2023 **Faraday Discussions**, *University of Edinburgh, Plenary Speaker*

May 2022 **UEA seminar, Invited**, *University of East Anglia, Norwich, Plenary Speaker*

## Other experiences

2019–2022 **Rowing coach**, *A.U.S.R. Orca*, Utrecht, *Caius Boat Club*, Cambridge
At Orca, I coached the women's eight. Along with three fellow coaches I selected, trained and guided a crew during an intensive and incredible year of high-performance sport. In 2022, I got involved as a coach with the boat club of the Gonville & Caius College of the University of Cambridge.

2021 **Flow Traders business course**, *Flow Traders*, Amsterdam
This highly selective event familiarizes the participants with trading and features a group assignment. My group was the only to finish the assignment and won the prize for best group.

2017–2019 **Student rower**, *A.U.S.R. Orca*, Utrecht
I rowed for the lightweight men's eight. I trained 6 to 9 times a week in an eight with my crew and regularly went to national regattas.

## Awards and certificates

GPS4S Grant The "Graduate Programme Science for Sustainability" grants are competitive unique grants awarded to only a handful of excellent students for their own research proposals. I was awarded the GPS4S grant for my proposal on Neuromorphic Computing.

Best bachelor thesis presentation Out of 41 presentations, the presentation of my thesis *"Physics and neuroscience, a fruitful fusion: A computational study on electrodiffusion in the periaxonal space"*, got selected by a jury of academics as the best presentation.

Best science student At my high school, when graduating, I earned the award for the best science student out of all the graduating students (roughly 120 students).

U-Talent I have a certificate from the U-Talent academy. This is a selective program for talented high school students with an affinity for science, where one gets acquainted with real scientific research both at Utrecht University and at school during the last three years of high school.

## Languages

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|---|---|---|---|
| Dutch | Native | English | Fluent (CEFR: C2) |

## Computer skills

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| Excel | Experienced | Python | Experienced |
| Mathematica | Experienced | C# | Familiar with |
| Machine learning | Familiar with | C/C++ | Familiar with |
| LaTeX | Experienced | NEURON | Experienced |
| Computer modelling | Experienced | COMSOL | Experienced |

## Hobbies

Rowing, playing the piano, various outdoor sport like cycling and mountain climbing, spending time with friends.