

# Tim Kamsma

★ 5 December 1997    📍 Utrecht, The Netherlands    ✉ tim.kamsma@gmail.com    🌐 timkamsma.com  
in LinkedIn    📄 Google Scholar    🆔 0000-0002-8898-8337    📄 Dutch: Native; English: Fluent

## 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 fruitful 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 **Visiting PhD Student**, *University of Cambridge*, Cambridge
  - Set up a new research collaboration with the group of Prof. Chris Pickard.
- 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 ongoing research project.

### Teaching

- 2017–present **Teaching Assistant**, *Utrecht University*
- 2013–present **Private Tutor**
- 2017–2021 **Teaching Assistant**, *SSL*, Leiden

## Papers and talks

### First-author papers

- [1] **Iontronic Neuromorphic Signaling with Conical Microfluidic Memristors**, *T. M. Kamsma, W. Q. Boon, T. Ter Rele, C. Spitoni, and R. Van Roij*, *Physical Review Letters*, Vol. 130, Issue 26 (2023)

- [2] **Unveiling the capabilities of bipolar conical channels in neuromorphic iontronics**, *T. M. Kamsma, W. Q. Boon, C. Spitoni, and R. van Roij*, *Faraday Discussions*, Vol. 246, 125-140 (2023)
- [3] **Brain-inspired computing with fluidic iontronic nanochannels**, *T. M. Kamsma, J. Kim, K. Kim, W. Q. Boon, C. Spitoni, J. Park, and R. van Roij*, *Proceedings of the National Academy of Sciences*, Vol. 121, Issue 18 (2024)
- [4] **Advanced iontronic spiking modes with multiscale diffusive dynamics in a fluidic circuit**, *T. M. Kamsma, E. A. Rossing, C. Spitoni, and R. van Roij*, *Neuromorphic Computing and Engineering*, Vol. 4, 024003 (2024)
- [5] **A simple mathematical theory for Simple Volatile Memristors and their spiking circuits**, *T. Kamsma, R. van Roij, and C. Spitoni*, *Chaos, Solitons & Fractals*, Vol. 186 (2024)
- [6] **Chemically Regulated Conical Channel Synapse for Neuromorphic and Sensing Applications**, *T. M. Kamsma, M. S. Klop, W. Q. Boon, C. Spitoni, B. Rueckauer, and R. Van Roij*, *Physical Review Research*, Vol. 7, Issue 1 (2025)
- [7] **Echo state and band-pass networks with aqueous memristors: leaky reservoir computing with a leaky substrate**, *T. M. Kamsma, J. J. Teijema, R. van Roij, and C. Spitoni*, *Chaos*, Vol. 35, 093133 (2025)
- [8] **Energy-efficient time series processing in real-time with fluidic iontronic memristor circuits**, *T. M. Kamsma, Y. Gu, C. Spitoni, M. Dijkstra, Y. Xie, and R. van Roij*, *Faraday Discussions*, (2026)
- [9] **Nonlinear iontronic signal processing with neuromorphic Spike Rate-Dependent Plasticity**, *T. M. Kamsma, Y. Gu, D. Shi, C. Spitoni, M. Dijkstra, R. van Roij, and Y. Xie*, arXiv:2603.20126, (2026)

### (Some of my) Talks

- Mar. 2026 **Reservoir Computing Conference**, *Technical University Berlin, Plenary Speaker*
- Jan. 2026 **NWO Physics, Veldhoven**, Speaker at the Dutch national Physics conference in Veldhoven
- Nov. 2025 **Emerging Research Seminar**, *Christ's College, Cambridge University, Plenary Speaker*
- 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

- 2019–2021 **Rowing coach**, *A.U.S.R. Orca, Utrecht*  
Along with three fellow coaches I selected, trained and coached the women's eight.
- 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 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 thesis presentation Out of all 41 presentations of my cohort, my bachelor thesis presentation 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 certificate This is a selective program of Utrecht University for talented high school students with an affinity for science.

## Programming/Software

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