

# Malin Ramne

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## Education

- 2021–2026 **PhD**, *Chalmers University of Technology*, Gothenburg,  
Research focus: *Mathematical models of phantom limb pain*.
- 2015–2020 **MSc in Engineering Physics**, *Chalmers University of Technology*, Gothenburg,  
Specialization: Complex Adaptive Systems.

## Technical & Analytical Skills

- Programming Python, Matlab, C, C#, Java, Swift, PHP, HTML, CSS
- Data & Modeling Statistical analysis, mathematical and computational modeling, high-dimensional data analysis, signal processing, computational biology and neuroscience
- ML & AI Model development in research settings, academic coursework, continuous engagement with methodological developments, collaboration with ML specialists
- Software & Systems High-performance computing, algorithm optimization, embedded systems, iOS and Android development, command line usage, version control with Git/GitHub

## Research Experience

- 2021–2026 **Doctoral Research**, *Chalmers University of Technology*, Gothenburg.
- Developed mathematical models to study mechanisms underlying phantom limb pain
  - Worked with high-dimensional brain imaging data, including structuring, preprocessing, and analysis according to field standards
  - Collaborated in interdisciplinary teams spanning engineering, medicine and neuroscience
  - Communicated complex results to both technical and non-technical stakeholders
- 2020 **Masters Thesis**, *Chalmers University of Technology*, Gothenburg.
- Enabled an autonomous robot to navigate an environment and avoid collisions using a spiking neural network which was trained using an evolutionary algorithm.

## Selected Publications

- Journal article* PLOS Computational Biology (2024): *A Computational Framework for Understanding the Impact of Prior Experiences on Pain Perception and Neuropathic Pain*
- Journal article* Journal of Neurophysiology (2025): *Unified Measures Quantifying Similarity and Intensity of Somatosensory Percepts*
- Conference proceedings* IEEE EMBS Conference (2025): *A Mathematical Model of Dorsal Horn Circuits' Contribution to Neuropathic Pain*

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## Industry & Applied Experience

- 2020 **Software Developer**, *Equilly AB*, Gothenburg.  
Developed software at a start-up company developing a pressure sensing saddle pad for equestrian sports. The work included development for Arduino and iOS, including wireless data transmission and communication via Bluetooth.
- 2018 & 2019 **Instrumentation & Component Testing**, *GKN Aerospace*, Trollhättan.  
Worked during the summers at the department for instrumentation and component testing. My main tasks consisted of analyzing data from tests and measurements, programming software that to be used during the tests, setting up and executing measurements and experiments, and exploring the possibilities of repairing components.
- 2017-2020 **Sole Proprietorship**, *iQuusen*.  
Secured external funding from *ALMI företagspartners* to develop a prototype-app for iOS-devices. Deployed and tested the app at major national and international equestrian events.

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## Teaching & Leadership

- Teaching Assistant In courses on Biomedical Electronics, Development of Medical Devices, Biomedical Instrumentation, and Logic and Automatic Control.
- PhD Student Council Promoted common interests of doctoral students in the department and facilitated relations with stakeholders at the university.
- Diversity Equity Inclusion Served as the departmental PhD student representative in the university's gender equality initiative. Helped create resources, influence decisions and formulate policies for improved workplace conditions for PhD student.

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## Languages

- Swedish **Native**  
English **Fluent**  
French **Intermediate**

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## References

References provided on request.