



# Joakim Bohlin

## DPhil in Biological Physics (he/him)

## Experience

### Address

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### LinkedIn

linkedin.com/in  
/joakimbohlin

### ResearchGate

researchgate.net/profile  
/Joakim-Bohlin

### Languages

Swedish ★★★★★  
English ★★★★★

- 2023 - now **Digital Research Engineer** [Chalmers University of Technology](#)  
Application expert part of the Swedish national infrastructure for scientific data visualisation, InfraVis. Employed at Chalmers E-commons.
- 2021 - 2022 **Assistant Research Professional** [Arizona State University, USA](#)  
Continued work with simulation and visualisation tools for nucleic acid structures. Design and coarse-grained modelling of self-limiting assembly.
- 2018 - 2021 **Marie Curie Early Stage Researcher** [University of Oxford, UK](#)  
DPhil student part of the DNA-robotics Innovative Training Network. Designing, simulating and analysing the self-assembly of DNA nanostructures.
- 2019/09-11 **Visiting Researcher** [Arizona State University, USA](#)  
6 week DNA robotics secondment. Developing design, analysis, and visualisation tools for nanostructural simulations in the Šulc lab at the Biodesign Institute.
- 2019/05-07 **Visiting Researcher** [Aarhus University, Denmark](#)  
Two-month DNA robotics secondment working with RNA origami design and simulation at the Andersen Lab in the Interdisciplinary Nanoscience Center.
- 2017 - 2018 **Research Project Assistant** [Chalmers University of Technology, Sweden](#)  
Employed by Prof. Claes Andersson for a six-month research project within spatial activity modelling and visualisation, using CUDA and Python (Numpy, Scipy, etc.).

## Education

- 2018 - 2022 **DPhil (PhD) in Condensed Matter Physics** [University of Oxford](#)  
Biological Physics. Design and modular self-assembly of nanostructures. Supervisors: Prof. Andrew J. Turberfield and Prof. Ard A. Louis
- 2015 - 2017 **Master's Degree in Engineering Physics** [Chalmers University of Technology](#)  
Master program in Complex Adaptive Systems  
Two years, 120 credits  
Thesis supervisor: Prof. Claes Andersson
- 2011 - 2017 **Master of Science in Engineering** [Chalmers University of Technology](#)  
Software Engineering  
Swedish degree of "Civilingenjör"  
Five years, 300 credits  
Course examples: Mathematical modelling and problem solving (DAT026), Simulation of Complex Systems (FFR120), Stochastic Optimization Algorithms (FFR105), Design and construction of graphical interfaces (DAT215), Human-Computer Interaction (TDA289), Artificial Intelligence (TIN171), Artificial Neural Networks (FFR135), Autonomous Agents (FFR125), Datastructures and Algorithms (TDA416).
- 2011 - 2014 **Bachelor's Degree in Software Engineering** [Chalmers University of Technology](#)  
Three years, 180 credits  
Thesis supervisor: Prof. Graham Kemp

## Publications

Joakim Bohlin, Andrew J Turberfield, Ard A Louis, Petr Šulc

**Designing the self-assembly of arbitrary shapes using minimal complexity building blocks** *ACS nano* 17.6 (2023): 5387-5398.

Joakim Bohlin, Michael Matthies, Erik Poppleton, Jonah Procyk, Aatmik Mallya, Hao Yan, Petr Šulc

**Design and simulation of DNA, RNA, and hybrid protein-nucleic acid nanostructures with OxView**

*Nature Protocols*, 6 June 2022

Erik Poppleton, Joakim Bohlin, Michael Matthies, Shuchi Sharma, Fei Zhang, Petr Šulc

**Design, optimization and analysis of large DNA and RNA nanostructures through interactive visualization, editing and molecular simulation**

*Nucleic Acids Research*, Volume 48, Issue 12, 09 July 2020

Jonathan P.K. Doye, Hannah Fowler, Domen Prešern, Joakim Bohlin, Lorenzo Rovigatti, Flavio Romano, Petr Šulc, Chak Kui Wong, Ard A. Louis, John S. Schreck, Megan C. Engel, Michael Matthies, Erik Benson, Erik Poppleton and Benedict E.K. Snodin

**The oxDNA coarse-grained model as a tool to simulate DNA origami**

*Methods in Molecular Biology, DNA and RNA Origami: Methods and Protocols*. New York, NY: Springer US, 2023. 93-112.

### As Joakim Johansson:

Joakim Johansson

**Evolved Ecosystems: A simulation of an emerging complex adaptive system**

*Master's thesis in Complex Adaptive Systems*

Marcus Bernhard, Daniel Johansson, Joakim Johansson, Linus Karlsson, Anton Palmqvist

**Sound-guided running using GPS and binaural audio in an exercise application**

*Bachelor's thesis in Software Engineering*

### Conference posters:

Joakim Bohlin, Petr Šulc, Andrew J. Turberfield, Ard. A. Louis

**Designing Polycube Assembly Rules using SAT**

*FNANO21*

Joakim Bohlin, Erik Poppleton, Michael Matthies, Aatmik Mallya, Petr Šulc

**How to Design Free-form DNA Nanostructures Online**

*FNANO21*

Joakim Bohlin, Andrew J. Turberfield, Ard A. Louis

**Probability of complex output in a simple self-assembly model of polycubes**

*DNA26*, DOI: 10.13140/RG.2.2.13080.01283

Joakim Bohlin, Andrew J. Turberfield, Ard A. Louis

**Complexity and modularity in a simple model of self-assembling polycubes**

*FNANO20*, DOI: 10.13140/RG.2.2.19971.73766

Erik Poppleton, Michael Matthies, Shuchi Sharma, Joakim Bohlin and Petr Sulc

**General-purpose analysis package for coarse-grained simulations of DNA/RNA nanotechnology** *DNA25*

Joakim Bohlin, Claes Andersson

**Evolved Ecosystems: A simulation of an emerging complex adaptive system**

*Nantech2019*, DOI: 10.13140/RG.2.2.12717.95202