

# MICHAEL A. BOEMO

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## EDUCATION

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UNIVERSITY **University of Oxford, Christ Church**  
Oxford, Oxfordshire, UK  
PERIOD October 2012 — August 2016  
DEGREE **Doctor of Philosophy**  
THESIS Computation by Origami-Templated DNA Walkers  
ADVISORS Professor Andrew J. Turberfield, Professor Luca Cardelli

UNIVERSITY **Rutgers, The State University of New Jersey**  
New Brunswick, NJ, USA  
PERIOD September 2008 — May 2012  
DEGREE **Bachelor of Arts in Mathematics, *summa cum laude***

## RESEARCH EXPERIENCE

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INSTITUTION **University of Oxford, Sir William Dunn School of Pathology**  
PERIOD May 2016— Present  
TITLE **Postdoctoral Research Assistant**

*Advisor:* Professor Conrad Nieduszynski

*Topic:* Computational study of DNA replication at single-molecule resolution

INSTITUTION **University of Oxford, Department of Physics**  
PERIOD October 2012 — May 2016  
TITLE **Marie Curie Early Stage Researcher, EScoDNA Fellow**

*Advisors:* Professor Andrew J. Turberfield, Professor Luca Cardelli

*Topic:* Theory of computation in synthetic DNA circuits

INSTITUTION **University of Oxford, Mathematical Institute**  
PERIOD February 2013 — July 2013  
TITLE **Doctoral Training Centre Research Project Student**

*Advisor:* Professor Helen M. Byrne

*Topic:* Mathematical modelling of tumours undergoing immunotherapy

INSTITUTION **University of Oxford, Mathematical Institute**  
PERIOD February 2013 — September 2013  
TITLE **Doctoral Training Centre Research Project Student**

*Advisors:* Professor Alain Goriely, Dr. Peter Stewart, Dr. Dominic Vella

*Topic:* Algorithms to detect abnormal brain folding in infants

## TEACHING EXPERIENCE

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### **University of Oxford**

Nominated for Oxford University Student Union teaching award, 2017  
College advisor to six graduate students at St. Cross College, 2016-present  
Senior Demonstrator for the Systems Biology Doctoral Training Centre, 2016-present  
Demonstrator for the Systems Biology Doctoral Training Centre, 2013

### **Rutgers University**

Senior Peer Instructor for the Aresty Research Center for Undergraduates, 2011-2012  
Peer Instructor for the Aresty Research Center for Undergraduates, 2010-2011  
Supplemental Instructor for Cognitive Science, 2010-2011  
Supplemental Instructor for Introductory Calculus, 2010

## SKILLS

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### **Computer Languages**

C, C++, Perl, Python, R, Bash, MATLAB, Maple, Mathematica, Prism, LaTeX, HTML

### **Laboratory Skills**

Basic biochemistry, DNA nanotechnology, and synthetic biology techniques

## CONFERENCE PRESENTATIONS

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### **London Calling: A Conference Hosted by Oxford Nanopore Technologies**

London, UK  
4-5 May, 2017

### **DNA21: 21st International Conference on DNA Computing and Molecular Programming**

Harvard University, Cambridge MA, USA  
17-21 August, 2015

## CONFERENCES ORGANISED

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### **Verification of Engineered Molecular Devices and Programs**

To be held in Oxford, UK  
18 July, 2018

## FELLOWSHIPS, FUNDING, AND AWARDS

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### **Emanuel Lee Junior Research Fellowship, 2016-present**

Non-stipendiary Junior Research Fellowship at St. Cross College, University of Oxford

### **NVIDIA GPU Grant, 2016-present**

Grant from NVIDIA that provided high-performance graphical processing units (GPUs) for machine learning research

### **Microsoft Azure Grant, 2016-present**

Grant from Microsoft for \$ 30,000 in cloud computing resources to study DNA replication

## Marie Curie Early Stage Researcher, 2013-2016

Fully funded DPhil at the University of Oxford

## American Friends Scholarship, Christ Church, University of Oxford, 2015

Scholarship for research merit given by the American Friends of Christ Church

## PUBLICATIONS

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**Boemo, M.A.**, Byrne, H.M. (2017) A continuum mechanics model predicts tumor spheroid remission when targeted by combination immunotherapy. *Manuscript in final stages of preparation.*

**Boemo, M.A.**, Lucas, A.E., Turberfield, A.J., Cardelli, L. (2016) The formal language and design principles of autonomous DNA walker circuits. *ACS Synthetic Biology* 5(8): 878-884.

**Boemo, M.A.**, Turberfield, A.J., Cardelli, L. (2015) Automated design and verification of localized DNA computation circuits. In: Phillips, A., Yin, P. (eds.) *DNA 2015. Lecture Notes in Computer Science* 9211: 1-13.

Wagh, K., Bhatia, A., Alexe, G., Reddy, A., Ravikumar, V., Seiler, M., **Boemo, M.A.**, Yao, M., Cronk, L., Naqvi, A., Ganesan, S., Levine, A.J., Bhanot, G. (2012) Lactase Persistence and Lipid Pathway Selection in the Maasai. *PLoS ONE* 7(9): e44751.

## CITIZENSHIP

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I am a citizen of the United States of America and hold a Tier 2 visa for work in the United Kingdom.

## OTHER ACTIVITIES

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I am a competitive cyclist, training and racing throughout the year. In addition to racing, I cycle to raise money for Oxfam, a charity that fights global poverty. I am also a former rower, and was elected by my peers to be Men's Captain of Christ Church Boat Club for the 2014-2015 academic year.

## REFERENCES

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**Conrad Nieduszynski** (conrad.nieduszynski@path.ox.ac.uk)  
Associate Professor of Cell Biology, University of Oxford  
Wellcome Trust Investigator

**Andrew J. Turberfield** (Andrew.Turberfield@physics.ox.ac.uk)  
Professor of Physics, University of Oxford

**Luca Cardelli** (luca@microsoft.com)  
Royal Society Research Professor, University of Oxford  
Principal Researcher, Microsoft Research Cambridge