

James Graham

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EDUCATION

UNIVERSITY OF OXFORD

MSC IN MATHEMATICAL AND
THEORETICAL PHYSICS

Distinction

June 2017 | Oxford, UK

Pembroke College

NORTHWESTERN UNIVERSITY

BS IN APPLIED MATHEMATICS

summa cum laude

March 2016 | Evanston, IL, USA

McCormick School of Engineering and
Applied Science

HUMBOLDT-UNIVERSITÄT ZU BERLIN

July-August 2015 | Berlin, Germany

Humboldt Winter and Summer University

LINKS

Personal://jngraham.com

Github://jngraham

SKILLS

PROGRAMMING

Competent:

C++ • MATLAB • Mathematica

Python • \LaTeX

Basic:

Java • R • Shell • HTML • CSS

LANGUAGES

Conversant:

Russian • German

Basic:

Spanish

COURSE PROJECTS

UNIVERSITY OF OXFORD | NON-PERTURBATIVE METHODS IN QUANTUM FIELD THEORY

March-April 2017 | Oxford, UK

- Simulated a $U(1)$ lattice gauge theory using C++;
- Extracted physical quantities from data using MATLAB and Excel.

NORTHWESTERN UNIVERSITY | ARCHITECTURAL ENGINEERING AND DESIGN STUDIO

Sept.-Dec. 2015 | Evanston, IL, USA

- Distilled client's needs from project brief;
- Synthesized a house design concept for a site on Northwestern's campus;
- Constructed a detailed scale model of house and environs.

RESEARCH

NORTHWESTERN UNIVERSITY | RESEARCH ASSISTANT

March 2014-Jan. 2015 | Evanston, IL, USA

- Simulated a Hodgkin-Huxley neural network using Python to investigate correlation of voltage spikes in presence of periodic stimulus;
- Created tools in Python and Mathematica to record and analyze simulation data in order to compare to theoretical results;
- Publication to be submitted.

NORTHWESTERN UNIVERSITY | RESEARCH ASSISTANT

April-Sept. 2013 | Evanston, IL, USA

- Integrated memory cortex model into simulation of signal decorrelation in olfactory bulb using MATLAB;
- Investigated how memories affect survival of synapses;
- Publication to be submitted.

TEACHING

NORTHWESTERN UNIVERSITY | TEACHING ASSISTANT, DEPARTMENT OF MATHEMATICS

Sept. 2015-March 2016 | Evanston, IL, USA

- Presented problems and led weekly discussion sections in single- and multivariable calculus;
- Invigilated and marked weekly quizzes and three exams per term.

NORTHWESTERN UNIVERSITY | TUTOR, INTEGRATED SCIENCE PROGRAM

Sept. 2015-March 2016 | Evanston, IL, USA

- Held three hours of tutoring per week;
- Assisted students with work ranging from problem sets to successful grant proposals.

AWARDS

2016	Outstanding Graduate Prize in Applied Mathematics	Top graduate in my department
2016	Roger Boye Oxbridge Bursary	Supporting study at Oxford
2014	Summer Research Opportunities Award	Supporting research June-Sept. 2014
2013	Merck Index	Top student in organic chemistry