Ryan M Harrison

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Education

Sept 2014 (Expected) — University of Oxford (Oxford, UK)
DPhil in Computational Biophysics
Thesis: Coarse-grained modelling of extreme DNA bending
- National Science Foundation Graduate Research Fellow <10% (2010)
- NIH-Oxford Scholar <10% (2010)

Dec 2009 — Johns Hopkins University (Baltimore, MD)
Bachelor of Science in Biomedical Engineering; **Minor in Economics**. GPA: 3.26/4.00
Capstone: Econometrics study on alternate GDP measures.
- Inductee, National Gallery for America's Young Inventors <1% (2006)
- 5th Place, Intel Science Talent Search <1% (2005)

Aug – Dec 2009 — Danish Institute for Study Abroad (Copenhagen, Denmark)
International Business Program.

Technical Experience

2010 – Present — Graduate Research Assistant at University of Oxford (Oxford, UK)
- Initiated and managed scientific **trans-atlantic collaboration**.
- Spearheaded software integration testing and automated documentation efforts.
- Resulted in a dramatic reduction in both scientific and build errors.

Summer 2013 — Game Animation Researcher at NaturalMotion (Oxford, UK)
- Improved character animation by applying themes from doctoral research.
- Communicated technical improvements through **non-technical live-demos**.
- Presented demos to areas as diverse as production, sales and analytics.

Jan – May 2010 — Software Bioengineer at Ginkgo BioWorks (Boston, MA)
- Developed software for grant milestone payments worth $\approx$ 6 months of operations.
- **Led** software integration effort for high-throughput DNA assembly pipeline.

Summer 2009 — Molecular Biologist at Ion Torrent Systems (Guilford, CT)
- Contributed to **team effort** to optimize a DNA sequencing prototype.
- Streamlined team workflow by building software to track system performance.
- Eased communication burden and encouraged collaboration through data sharing.

Summer 2008 — Polymer Chemist at National Institute for Materials Science (Tsukuba, Japan)
- Invented a total synthesize for a novel conducting polymer, resulting in a Japanese patent application and a highly-cited (40+) publication (DOI).

2003 – 2007 — Protein Structure Software Researcher at Johns Hopkins University (Baltimore, MD)
- Built a model of pH-sensitive regions within proteins.
- **Mentored** high school student with interest in protein structure prediction.

Non-technical Experience

2006-2009 — Executive Treasurer at JHU Engineers without Borders (Baltimore, MD)

- Created financial structure for engineering organization with $100k/yr turnover.
- **Financial oversight** for teams operating in 3 developing countries.
- Drafted and presented annual report to Dean of Engineering for continued support.

Spring 2009 — Legislative Aide at Maryland General Assembly (Annapolis, MD)

- Shepherded 3 bills from conception to passage by coordinating with **diverse stakeholders** (e.g. constituents, doctors, hospitals, insurers) to amend legislation.
- Supported state delegate through written testimony digests and oral briefings.

Fall 2007 — Health Policy Analyst at Baltimore City Health Department (Baltimore, MD)

- Liased across the department to compile and analyse data for the 2008 Baltimore City Health Status Report.
- Wrote reports on drug decriminalization and teen-smoking abatement, including **reduction to practice** through a youth anti-smoking campaign.

Academic

Publications

In preparation — *Harrison RM*, Romano F, Ouldridge TE, Louis AA, Doye JP. Coarse-grain modelling of extreme DNA bending II: Cyclization.

In preparation — *Harrison RM*, Romano F, Ouldridge TE, Louis AA, Doye JP. Coarse-grain modelling of extreme DNA bending I: Molecular-vice.

2014 — Doye JP, Ouldridge TE, Louis AA, Romano F, Šulc P, Matek C, Snodin BE, Rovigatti L, Schreck JS, *Harrison RM*, Smith WP. Coarse-graining DNA for simulations of DNA nanotechnology. Physical Chemistry Chemical Physics 2013;15(47):20395–20414.

2012 — Kilambi KP, Gray JJ. Rapid Calculation of Protein pKa Values Using Rosetta. Biophysical Journal 2012 Aug;103(3):587–595. (Acknowledged for Software Contributions)

2010 — Sugiyasu K, Honsho Y, *Harrison RM*, Sato A, Yasuda T, Seki S, Takeuchi M. A Self-Threading Polythiophene: Defect-Free Insulated Molecular Wires Endowed with Long Effective Conjugation Length. J. Am. Chem. Soc. 2010 Sep.

Recent Scientific Communication

30 Apr 2014 — Theoretical Chemistry Group Graduate Student Meeting (London, UK)

10–12 Mar 2014 — CECAM: Biological molecules under non-natural conditions (Stuttgart, DE)

17 Apr 2013 — Softbio Day, Oxford Center for Soft and Biological Matter (Oxford, UK)

9–12 Oct 2012 — National Institutes of Health Research Fesival (Bethesda, MD)

Awards for Scientific Communication

2012 — oxTalent Infographic Award <10%

2011 — NIH Graduate Research Award for Poster Presentation <10%

Extracurricular

Jan–Mar 2013 — Oxford Student Consultancy Project

- Team of 4 helped local non-profit identify root causes of membership decline.

2012–2013 — Saïd Business School Building a Business Course

May/Sept 2012 — Venture Capital and Biotech Conference Volunteer

- Supported conference activities to gain exposure to biotech funding ecosystem.

Apr 2013 — Facebook London Hackathon

- Team of 3 developed distributed computing app in 24 hours. Honorable mention.

Hobby

Bow tie maker • Allotment gardener • Theater light tech