Panel: Alternative Careers for Biomedical Informatics PhDs

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Abstract

The number of doctoral training programs in informatics increases every year, however not every doctoral candidate wishes to pursue a traditional career in academia. In addition, the knowledge and skills acquired through scientific training at the doctoral level can be valuable, even critical, for a number of career paths outside of academic research and teaching. This panel will present a diverse set of alternative career paths for which graduates of Informatics programs would be well suited, including patent law, research in industry, academic administration, and scientific journalism. Panelists will describe their own respective backgrounds and career paths, a day in the life in their current position, and how their training prepared them for their jobs. They will also touch on insights gained and lessons learned in exploring the professional landscape through non-traditional paths.
**Introduction**

The “traditional” career path for a doctoral student involves a post-doctoral position, followed by a tenure track faculty appointment. In many scientific fields, tenure track positions are highly competitive and the supply of PhDs vastly outweighs the demand in the form of open faculty slots. Graduates in informatics are at a significant advantage over many other scientific disciplines in this regard in that many departments are actively recruiting new faculty in this field. However, not every doctoral candidate wishes to pursue a traditional career in academia. In addition, the knowledge and skills acquired through scientific training at the doctoral level can be valuable and even critical for a number of non-scientific, non-research, and non-academic positions. This panel will present a diverse set of alternative career paths for which graduates of Informatics programs would be well suited, including patent law, research in industry, academic administration, and scientific journalism.

**Panelists:**

- Eric Horvitz, PhD- Distinguished Scientist, Microsoft
- Marco Sorani, PhD- Senior Manager, Genentech
- Andrew Torrance, PhD, JD - Patent Law, Kansas University
- Monya Baker, EdM- Nature Publishing Group

The panel will be moderated by Jessica Tenenbaum, PhD- Associate Director for Bioinformatics, Duke Translational Medicine Institute. Issues to be addressed by the panelists include:

- Their own professional/educational background
- How they arrived at their current position
- Why, how, and whether they chose their respective career paths
- A “day in the life” in their respective positions
- How (or if) they stay up-to-date on trends in the field

This panel will be of particular interest both to students considering alternative careers, and to advisors of those students, current and future.

**Panelists**

**Marco Sorani, PhD**

Dr. Sorani began his career in the software industry, with a focus on consulting and entrepreneurship. Over time, he came to the realization that while he found the technology to be interesting, its application (at that time, telecommunications and financial systems) was less so. This realization coincided with the conclusion of the Human Genome Project, which inspired him to go back to graduate school for a PhD in biomedical informatics. After graduating from UCSF, Dr. Sorani joined Genentech first in R&D and then in the commercial group. His presentation will describe his position in a large biotech company, and how his graduate training in genetic variation and data analysis prepared him for a market research and strategy position in biomarkers and diagnostics. He will address the idea, commonly understood in industry, that complex problems require people who have both the "process" and "content" skills to structure solutions. He will conclude with reflections on his own path and advice for students embarking upon their own.

**Monya Baker, EdM**

After teaching high school science, Monya Baker found her way into science journalism. She currently writes and edits for *Nature* magazine and has written for publications including *Wired, New Scientist* and the *Economist*. She also contributed to *The Science Writers’ Handbook: Everything You Need to Know to Pitch, Publish, and Prosper in the Digital Age*, due out in April. Ms. Baker will describe how would-be writers with science backgrounds can get their first assignments, what makes for a happy, solvent science writer, and debunk widely held myths about the career.
Andrew Torrance, PhD, JD

Andrew Torrance studied biology and classical languages as an undergraduate at Queen's University in Canada, and continued to pursue biology at Harvard University, where he received his Ph.D. for his research on the genetics and evolution of Australasian mice. Having developed an interest in the legal implications of biology during his doctoral studies, Dr. Torrance then crossed Oxford Street to study law at Harvard Law School. While at the Law School, he was invited by several law firms to work in their intellectual property departments. Although it was never his intention to become a patent attorney, the natural intersection in patent law between law and biology led him to a rewarding career in biotechnology patent law. Andrew worked for two leading patent law firms, before accepting an offer to become in-house patent counsel to a global biotechnology company. In this role, he helped obtain patents on new inventions, defend against infringement by other companies, negotiate licenses, and set up a new company.

Having always enjoyed research and teaching, Andrew taught an interdisciplinary biology, policy, and law class in the biology department at Harvard University from 1999 until 2005. In 2005, he accepted a professorship at the University of Kansas School of Law, where he was named a Docking Faculty Scholar, and receive tenure and promotion to Full Professor in 2011. Outside of academia, Dr. Torrance works as intellectual property counsel at a software company, and serves on the boards of several start-up technology companies. He finds it easiest to keep up to date in his fields both by being an active scholar and by continuing to work in the technology industry.

Although he could never have predicted what path his career would take, Andrew feels very fortunate to have been given the opportunities he has to combine his interests in research and practice, and in biology, law, and policy. He will describe his activities in a “typical day” and the various plot twists in his highly non-linear career path.

Eric Horvitz, MD, PhD

Eric Horvitz received his PhD and MD degrees at Stanford University and is a Distinguished Scientist at Microsoft, where he serves as co-director of Microsoft Research's main Redmond lab. His research interests span theoretical and practical challenges with developing systems that perceive, learn, and reason. His contributions include advances in principles and applications of machine learning and inference, information retrieval, human-computer interaction, bioinformatics, and e-commerce. He is an elected Fellow of the Association for the Advancement of Artificial Intelligence (AAAI) and of the American Association for the Advancement of Science (AAAS), and was elected to the ACM CHI Academy in 2013. He currently serves on the NSF Computer & Information Science & Engineering (CISE) Advisory Board and on the council of the Computing Community Consortium (CCC).

Dr. Horvitz will speak about his own training and career path, his more than 20 years at Microsoft Research, and how he has stayed on the cutting edge of research in the field while remaining outside of academia.