ROBERT A. GIAQUINTO

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RESEARCH INTERESTS

Machine Learning · Information Retrieval · Deep Generative & Graphical Models · Variational Inference

EDUCATION

University of Minnesota - Twin Cities, Minneapolis, MN *2016 — Present*
Ph.D. in Computer Science
Advisor: Arindam Banerjee
Cumulative GPA: 4.0

University of Minnesota - Twin Cities, Minneapolis, MN *2014 — 2016*
M.S. in Computer Science
Capstone: *Graphical Models for Data with Spatiotemporal Dependencies*
Cumulative GPA: 3.74

St. Olaf College, Northfield, MN *2006 — 2010*
B.A. in Mathematics, Statistics
Cumulative GPA: 3.36, Junior/Senior GPA: 3.61

RESEARCH EXPERIENCE

HRL Laboratories May 2018 — Aug 2018
Research Intern *Malibu, CA*

· Machine learning research on an Intelligence Advanced Research Projects Activity (IARPA) research program for integrating human and machine forecasts.
· Developed a novel graphical model to augment human forecasting of geopolitical, macroeconomic, and health events.

Department of Computer Science, University of Minnesota Sep 2016 — Present
Research Assistant *Minneapolis, MN*

· Research focuses on embedding and topic models, approximate inference, and deep learning with applications to text data.
· Discovered a new model, the Dynamic Author-Persona topic model (DAP), for finding similar authors and the topics they write about over time.
· Developed theory and software for scaling DAP to billion word corpora, and implemented system on the Minnesota Supercomputing Institute's machines.

Thomson Reuters Labs May 2016 — Aug 2016
R&D Intern *Eagan, MN*

· Discovered compact representation of a large corpus of legal texts to facilitate fast search and information retrieval.
· Modeling of legal texts combined topic, language, and embedding models.

Institute for Health Informatics, University of Minnesota Feb 2015 — May 2016
Research Assistant *Minneapolis, MN*

· Built an automated system that extracts and shares key sections of doctor's notes with hospital patients.

· Transformed unstructured rich text files from doctor's notes using natural language processing into a structured dataset.
· Key sections of text were extracted using a semi-supervised classification algorithm, which incorporates hundreds of thousands of unannotated doctor's notes in the learning process.

Capella Education Company Aug 2010 — Feb 2015
Research Analyst *Minneapolis, MN*

· Developed an automated system to predict academic success of students applying to Capella University.
  - Predictions created focus for academic coaching, signal alerts for faculty, recommend students for targeted orientation courses, and shift marketing strategies.
· Built statistical models relating individual factors to a likelihood of defaulting on student loans.
  - Tailored results of model to prioritize financial aid counseling teams.

PUBLICATIONS

Preprints

1. **R. Giaquinto** and T.-C. Lu. Structuring discussions for collaborative forecasting.
2. C. E. Smith, Z. Levonian, **R. Giaquinto**, H. Ma, G. Lein-McDonough, Z. Li, and S. Yarosh. "I Cannot Do All of this Alone": Sociotechnical opportunities for spiritual and instrumental support on cancer journeys.

Journal Articles

3. H. Ma, C. E. Smith, L. He, S. Narayanan, **R. Giaquinto**, R. Evans, L. Hanson, and S. Yarosh. Write for life: Persisting in online health communities through expressive writing and social support. *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 1:73:1–73:24, 2017.

Conference Articles

4. **R. Giaquinto** and A. Banerjee. DAPPER: Scaling the DAP topic model to billion word corpora. In *ICDM*, 2018.
5. **R. Giaquinto** and A. Banerjee. Topic modeling on health journals with regularized variational inference. In *AAAI*, 2018.
6. R. Bjarnadottir, S. Maganti, M. J. Kreitzer, M. Mathiason, **R. Giaquinto**, and K. Monsen. Discovering the value of the omaha system for knowledge representation and data extraction in health intelligence. In *AAAI Joint Workshop on Health Intelligence (W3PHIAI)*, 2018.

SELECTED PRESENTATIONS

2018 ICDM - DAPPER: Scaling the DAP Topic Model to Billion Word Corpora (poster + presentation).

2018 Minnesota Supercomputing Institute Research Exhibition - Scaling Inference on Massive Corpora to Supercomputing Scales (poster).

2018 AAAI - Topic Modeling on Health Journals with Regularized Variational Inference (poster).

2018 CaringBridge Research Collaborative Ideation Workshop - Discovering Topics on CaringBridge Journals (presentation).

SOFTWARE

DAP: A Python package for the Dynamic Author Persona topic model. 2017 — Present

See `http://github.com/robert-giaquinto/` for addition projects.

TECHNICAL STRENGTHS

Programing Languages, Proficient	Python, C, C++, CUDA, R, Regex, MATLAB, LaTeX, Bash
Programing Languages, Basic	Java, HTML, CSS, AWK
Databases	MySQL, PostgreSQL, Oracle, SQLite, MongoDB
Tools	Git, Terminal, Microsoft Suite
Operating Systems	Mac OSX, Windows, Linux

REFERENCES

Available on request.