

Fritz H. Obermeyer

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University Address

Wean Hall 6113
Carnegie-Mellon University
Pittsburgh, PA, 15213

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Education

- Aug. 2005 – Present Carnegie-Mellon University
Department of Mathematics
Enrolled in interdisciplinary Ph.D. program in Pure and Applied Logic
- Jan. 2002 – May 2004 M.S. in Math from Colorado State University
- Aug. 1997 - Dec. 2001 B.S. in Physics + Applied Math from Colorado State University

Research Experience

- CMU, 2005-Present Research in combinatory logic and λ -calculus:
Adapted computational algebra algorithms to combinatory logic.
Applied geometric group theory and statistical physics to λ -calculus.
Formulated Bayes filter on models of λ -calculus,
with large-scale implementation.
- Numerica Corp., 2002-2005 Developed a “Bayesian Network Tracking Database” in support of
target classification (masters thesis).
Developed high-accuracy nonlinear batch filters together with Aubrey Poore.
Worked on ambiguity assesment in data association problems.
- Industrial Math Seminar
at CSU, 2003 Developing fault detection algorithms with Michael Kirby and students
in conjunction with Siemens.
- IBM, 2001 Linescreen analysis for color printing with Joan Mitchell.
Image analysis relating to `jpeg` compression.
- CSU, 1997 Numerical solution of PDEs with Kelly McArthur.
- independent topics in combinatory logic and functional programming,
(Kolmogorov-Solomonoff-Chaitin) complexity theory,
Riemannian geometry/general relativity, and
computational group theory.

Teaching Experience

CMU, summer 2007	Instructor for second-semester Calculus.
CMU, spring 2006-spring 2007	TA for Calculus semesters 1-3.
CMU, fall 2005	TA for introductory proofs course "Concepts of Math".
CSU, spring 2004	Instructor for elementary financial math course (60 students), including lab sections and lab design.

Professional Experience

2002-2005, Research Scientist, Numerica Corp.	Developed algorithms; wrote successful proposals for DOD contracts. Managed 2-year \times 2-person project developing tracking algorithms and Python implementation. Wrote reports and research papers.
Summer 2001, Intern, IBM Boulder	Worked in small research group on color printing technology. Developed and patented printing methods in IBM's active Intellectual Property culture.

Published Papers

Short-term Ambiguity Assesment to Augment Tracking Data Association Information
S. Gadaleta, S. Herman, M. Levedahl, S. Miller, F. Obermeyer, B.J.Slocumb, and A.B.Poore
Fusion 2005

A Bayesian Network Tracking Database
Fritz Obermeyer and Aubrey Poore,
Proceedings of SPIE Signal and Data Processing of Small Targets 2004

Batch maximum likelihood (ML) and maximum a posteriori (MAP) estimation with process noise for tracking applications'
Aubrey B. Poore, Benjamin J. Slocumb, Brian J. Suchomel, Fritz H. Obermeyer, Shawn M. Herman, Sabino M. Gadaleta
Proceedings of SPIE Signal and Data Processing of Small Targets 2003

Patents

US Number 6956670 With Joan Mitchell of IBM, et al, concerning the combination of multiple linescreens of different resolution in color printing. This innovation resulted from examining the power spectra of interacting linescreens.