Daniel Winograd-Cort PhD | Résumé

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Objective Statement

To leverage 15+ years of functional programming and type theory research toward building high-performance, secure, sound, and elegant technologies that will be beneficial to mankind.

Experience

Luminous Computing — 2020–2023

Senior Software Engineer, Principal Software Engineer starting 2023

Technical lead on the Software/Hardware Co-Design team. Designed and implemented a simulator that models experimental hardware and software to deliver expected performance metrics and to allow dynamic, quantitative feedback of other teams' design ideas. Led and mentored two junior engineers. Haskell and Python.

Target Corp — 2017–2020

Lead Data Scientist

Led the design and implementation of a supply-chain simulation system that allows users to test different input parameters (e.g., forecasted demand, scheduling, etc.) and observe probabilistically accurate results. Main contributor of a small team that integrates with other Target groups. Haskell.

University of Pennsylvania — 2015–2017

Postdoc, Advisor: Benjamin Pierce   *Philadelphia, PA*

Built a programming language which incorporates state of the art adaptive differential privacy directly into the type system. This included the design, analysis, and correctness proof of a novel partial evaluation system to enhance type checking. OCaml code with paper proofs.

Yale University — 2009–2015

PhD Earned, Advisor: Paul Hudak   *New Haven, CT*

Developed a novel form of FRP with effects and built it into a library for user interfaces. Haskell.

Microsoft Research — 2011

Research Intern, Supervisor: Simon Marlow   *Cambridge, UK*

Added data and type declarations to GHCi and researched new features for the Par monad. Haskell.

MIT Lincoln Lab — 2008–2009

Space Systems Analyst   *Lexington, MA*

Designed multi-sensor schedulers for a space surveillance network simulator focusing on performance and parallelization. Large scale Java code.

Brown University undergraduate honors thesis — 2008

Designed a neural network to learn relationships between hands and contracts in the card game Bridge. Java.

Brown University Coursework — 2006–2008

- Designed and implemented a Linux interface to a pinball machine allowing external control of the machine. Included real-time and embedded programming in C and a Linux kernel module.
- Led server development in a group of four to design and create a 3D, graphical, multiplayer computer game based on Diplomacy. Included code in Java, Python, and C.
- Created a replicated, consistent, fault-tolerant, distributed database and integrated it with Cube, an open source client/server first person shooter. Included code in C++ and Java.

Current Open-Source Projects

Row-types – *Creator*   **2018–Present**
The row-types package is an extensible record and sum-type library for Haskell.

UISF – *Creator*   **2013–Present**
The UISF (User Interface Signal Functions) package is an arrowized FRP library for graphical user interfaces which stems from work done on Euterpea.

Education

Yale University   **2015**
PhD in Computer Science   *New Haven, CT*
Thesis Title: Effects, Asynchrony, and Choice in Arrowized Functional Reactive Programming
Advisor: Paul Hudak, then Zhong Shao

Yale University   **2011**
M. Phil and M.S. in Computer Science   *New Haven, CT*

Brown University   **2008**
Sc.B. in Math-Computer Science, with Honors   *Providence, RI*

Chatham High School   **2004**
Awards and Honors: *Chatham, NJ*
Edward J. Bloustein Distinguished Scholar, National Honors Society, AP Scholar,
National Merit Finalist, Dartmouth Club Book Award, George Washington Medal

Selected Publications

Winograd-Cort, D, Haeberlen, A, Roth, A, and Pierce, B. "A Framework for Adaptive Differential Privacy". In *ICFP*, pages 10:1–10:29. ACM, August 2017.

Winograd-Cort, D, Zhang, H, and Pierce, B. "Partial Evaluation for Typechecking". In Submission.

Winograd-Cort, D and Hudak, P. "Settable and Non-Interfering Signal Functions for FRP". In *ICFP*, pages 213–225. ACM, September 2014.

Winograd-Cort, D and Hudak, P. "Wormholes: Introducing Effects to FRP". In *Haskell Symposium*, pages 91–103. ACM, September 2012.

Winograd-Cort, D, Liu, H, and Hudak, P. "Virtualizing Real-World Objects in FRP". In *PADL*, pages 227–241, January 2012.

Relevant Skills

- Adept at programming, with proficiency in HASKELL, JAVA, OCAML, PYTHON; experience in COQ, SCHEME, C++, SML, RUST; and ability to learn new languages quickly
- Strong mathematics, with knowledge of number theory, algebra, probability, and cryptography

Interests

– Isshin Kempo Karate (Black Belt)   – Aviation (Private Pilot)   – Skiing/Snowboarding