CHARLES JIN
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EDUCATION

Yale University **Aug 2012 – May 2016**
Combined B.S./M.S. in Computer Science. B.S. in Mathematics with Distinction.
GPA: 3.96/4.00. *summa cum laude*. Phi Beta Kappa. Schulz Prize: awarded to a Silliman College senior for academic excellence in the physical sciences or mathematics.

PAPERS

Charles Jin, Muthu Baskaran. "**Analysis of Explicit vs. Implicit Tasking in OpenMP using Kripke**." 4th Workshop on Extreme Scale Programming Models and Middlewear (held in conjunction with SC18). (To appear.)
- Explored tradeoff between overhead and flexibility of dynamic task-based runtimes in OpenMP 4.5.
- Implemented variants of the Kripke benchmark to see how different software decompositions mapped to given hardware constraints; experimentally verified that the dependence structure of the core "sweep" kernel was better suited for dynamic task-based parallelism than implicit parallelism.

PROJECTS

More Annihilating Attacks: an extension of MSZ16 **Fall 2015 – Spring 2016**
Independent project advised by Prof M. Raykova. *github.com/charlesjin/annpoly*
- Studied algebraic approaches to cryptographic obfuscation with a focus on multilinear maps.
- Extended an annihilating attack (MSZ16) on indistinguishable obfuscation instantiated using candidate multilinear maps (GGH13) from a trivial branching program to a more general class.
- Manuscript was accepted as thesis for a Master's in Computer Science.

Code Generation Utility for Finite Field Arithmetic **Fall 2014 – Fall 2015**
Independent project advised by Prof B. Ford. *github.com/charlesjin/codegen*
- Built a code generation utility in Haskell for finite field arithmetic over Curve25519.
- Demonstrated proof-of-concept for automatically generating primitives for elliptic curve cryptography over arbitrary primes without the need for hand-tuned optimizations.

WORK

Reservoir Labs, Research Engineer **June 2018 – present**
Commercial research lab specializing in compilers and high-performance computing.
- Design and implement an API to extend R-Stream, a proprietary source-to-source polyhedral compiler, with a runtime layer to provide additional support for extracting task-based parallelism.
- Evaluate performance of parallel programming models (e.g. OCR, OpenMP, Legion) targeting exascale systems with heterogeneous architectures.
- Contribute to reports and papers, including grant proposals and progress reports.

Weiss Asset Management, Developer / Analyst **July 2016 – June 2018**
Sole hybrid software developer-investment analyst. Responsible for coordinating activity between teams; engineering robust, scalable software systems; and identifying and executing investments.
- Built systems that run Monte Carlo simulations to model complex derivatives; used for >$100MM of trading per year. Increased speed of existing Python PDE solver by 500x.
- Reimplemented trade reconciliation engine in a layered architecture, improving testability, robustness, and speed. Wrote test suite that exposed several major bugs in previous application.

OTHER

YHack, President and Cofounder **Fall 2013 – Spring 2015**
Annual hackathon at Yale with over 1000 attendees. *yhack.org*
- Planned and organized the inaugural event with over 800 attendees as a team of 3 in 2013.
- Led a team of 20 members for a 48-hour event with 1200 attendees in 2014. Successfully oversaw first transition to new leadership in 2015. Sole developer of website for both 2013 and 2014 events.
- Coordinated CodeBlue "learnathon" for underserved New Haven high school students in 2015.

3rd Place, CSI CyberSEED Social Engineering Challenge **Oct 2015**
Capture-the-flag challenge to penetrate a fictitious company using hacking techniques like social engineering, SQL injection, and buffer overflow attacks. Team received $5K cash prize.

SeeMail, HackPrinceton **Nov 2013**
Used an autogenerated signature image to provide email read receipts. Featured in TechCrunch.