

Michelle Goodstein

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Professional Experience

- November 2014 – present **Research Scientist**, *Facebook*, Seattle, WA.
Large-scale distributed systems development in data infrastructure, spanning data warehouse and realtime monitoring.
- Lead project to improve realtime alerting systems by surfacing additional information.
 - Lead prioritization of reliability improvements across realtime detection and alerting.
 - Mentor junior engineers within the org and help onboard new teammates in Seattle.
- Summer 2006 **Software Engineering Intern**, *Google*, Kirkland, WA.
Mobile application development.
- Summer 2005 **Software Engineering Intern**, *Google*, Kirkland, WA.
Web application development, focusing on AJAX.

Education

- August 2014 **PhD, Computer Science**, *Carnegie Mellon University*, Pittsburgh, PA.
Thesis Title: *Dataflow Analysis-Based Dynamic Parallel Monitoring*
Advisor: Prof. Todd Mowry
- May 2008 **MS, Computer Science**, *Carnegie Mellon University*, Pittsburgh, PA.
- June 2005 **BS, Computer Science** and **BS, Mathematics**, *Univ. of Washington*, Seattle, WA.
Magna Cum Laude with College Honors in Computer Science

Programming Languages

Proficient with: C/C++, Java.

Familiar with: PHP(Hack), Python.

Professional Service

Program Committee: PPOPP 2018

External Review Committee: PPOPP 2017, PACT 2016

Student Research Competition Judge: PACT 2015

Research Experience

- Fall 2005 – Summer 2014 **Graduate Research**, *Carnegie Mellon University*, Pittsburgh, PA.
- Adapted static dataflow analysis techniques to dynamic parallel program monitoring to detect errors and security risks, in a framework called *Butterfly Analysis* (ASPLOS 2010).
 - Generalized Butterfly Analysis to incorporate synchronization-based happens-before arcs to improve precision, in a framework called *Chrysalis Analysis* (PACT 2012).
 - Explicitly modeled uncertainty due to the lack of total orderings within Butterfly and Chrysalis Analyses to enable adaptive improvements in precision (PACT 2015, dissertation).

- Summer 2010 **Intel Research Pittsburgh/CMU Summer Fellowship**, *Intel Labs*, Pittsburgh, PA.
Summer 2008 **Intel Research Pittsburgh/CMU Summer Fellowship**, *Intel Labs*, Pittsburgh, PA.

Publications

Dissertation

Michelle L. Goodstein. Dataflow Analysis-Based Dynamic Parallel Monitoring. Carnegie Mellon University Technical Report: CMU-CS-14-132, August 2014.

Peer Reviewed Conferences

- PACT 2015 **Michelle L. Goodstein**, Phillip B. Gibbons, Michael A. Kozuch and Todd C. Mowry. Tracking and Reducing Uncertainty in Dataflow Analysis-Based Dynamic Parallel Monitoring. In *Proceedings of the Twenty-Fourth International Conference on Parallel Architectures and Compilation Techniques*, October 2015.
- PACT 2012 **Michelle L. Goodstein**, Shimin Chen, Phillip B. Gibbons, Michael A. Kozuch, and Todd C. Mowry. Chrysalis Analysis: Incorporating Synchronization Arcs in Dataflow-Analysis-Based Parallel Monitoring. In *Proceedings of the Twenty-First International Conference on Parallel Architectures and Compilation Techniques*, September 2012.
- ICRA 2011 Michael P. Ashley-Rollman, Padmanabhan S. Pillai, and **Michelle L. Goodstein**. Simulating multi-million-robot ensembles. In *IEEE International Conference on Robotics and Automation*, May 2011.
- ASPLOS 2010 **Michelle L. Goodstein**, Evangelos Vlachos, Shimin Chen, Phillip B. Gibbons, Michael A. Kozuch, and Todd C. Mowry. Butterfly Analysis: Adapting Dataflow Analysis to Dynamic Parallel Monitoring. In *Proceedings of the Fifteenth International Conference on Architectural Support for Programming Languages and Operating Systems*, March 2010.
- ASPLOS 2010 Evangelos Vlachos, **Michelle L. Goodstein**, Michael A. Kozuch, Shimin Chen, Babak Falsafi, Phillip B. Gibbons, and Todd C. Mowry. ParaLog: Enabling and Accelerating Online Parallel Monitoring of Multithreaded Applications. In *Proceedings of the Fifteenth International Conference on Architectural Support for Programming Languages and Operating Systems*, March 2010.

Selected Technical Reports

Michelle Goodstein and Virginia Vassilevska. A Two Player Game To Combat Web Spam. Carnegie Mellon University Technical Report: CMU-CS-07-134, June 2007.