

# Johann-Alexander Hauswald

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## Research interests

System design for emerging applications, optimization tools and techniques for machine learning, performance efficiency for edge devices.

## Education

**University of Michigan** Ann Arbor, MI  
Ph.D. in Computer Science and Engineering 2017  
Thesis: System Design for Intelligent Web Services

**University of Michigan** Ann Arbor, MI  
M.S. in Computer Science and Engineering 2015

**University of Michigan** Ann Arbor, MI  
B.S.E. in Electrical Engineering 2013

## Awards

IEEE Micro Top Picks for Sirius (ASPLOS'15) 2016

TOCS publication Sirius (ASPLOS'15) 2016

Qualcomm Innovation Fellowship (QInF) Finalist 2016

Best Paper nomination Sirius (ASPLOS'15) 2015

## Publications

### **Outlier Detection for Improved Data Quality and Diversity in Dialog Systems**

S. Larson, A. Mahendran, A. Lee, J. Kummerfeld, P. Hill, M. Laurenzano, **J. Hauswald**, L. Tang, J. Mars.  
NAACL-HLT, 2019

### **Data Collection for a Production Dialogue System: A Clinic Perspective**

Y. Kang, Y. Zhang, J. Kummerfeld, P. Hill, **J. Hauswald**, M. Laurenzano, L. Tang, J. Mars.  
NAACL-HLT, 2018

### **Neurosurgeon: Collaborative Intelligence Between the Cloud and Mobile Edge**

Y. Kang, **J. Hauswald**, C. Gao, A. Rovinski, T. Mudge, J. Mars, L. Tang.  
ASPLOS, 2017

### **Designing Future Warehouse Scale Computers for Sirius, An End-to-end Voice and Vision Personal Assistant**

**J. Hauswald**, M. Laurenzano, Y. Zhang, H. Yang, Y. Kang, C. Li, A. Rovinski, A. Khurana, R. Dreslinski, T. Mudge, V. Petrucci, L. Tang, J. Mars.  
TOCS, 2016  
*Invited Paper*

### **Sirius Implications for Future Warehouse-Scale Computers**

**J. Hauswald**, M. Laurenzano, Y. Zhang, C. Li, A. Rovinski, A. Khurana, R. Dreslinski, T. Mudge, V. Petrucci, L. Tang, J. Mars.  
IEEE Micro Top Picks, 2015

### **DjiNN and Tonic: DNN as a Service and Its Implications for Future Warehouse Scale Computers**

**J. Hauswald**, Y. Kang, M. Laurenzano, Q. Chen, C. Li, T. Mudge, R. Dreslinski, J. Mars, L. Tang.  
ISCA, 2015

**Sirius: An Open End-to-end Voice and Vision Personal Assistant and Its Implications for Future Warehouse Scale Computers**

**J. Hauswald**, M. Laurenzano, Y. Zhang, C. Li, A. Rovinski, A. Khurana, R. Dreslinski, T. Mudge, V. Petrucci, L. Tang, J. Mars.

ASPLOS, 2015

*Selected for Micro Top Picks, Selected as Invited Paper in the ACM Transactions on Computer Systems, Best Paper Nominee*

**A Hybrid Approach to Offloading Mobile Image Classification**

**J. Hauswald**, T. Manville, Q. Zheng, R. Dreslinski, C. Chakrabarti, T. Mudge.

ICASSP, 2014

Patents

**Systems and methods for machine learning-based multi-intent segmentation and classification.**

J. Peper, P. Hill, K. Leach, S. Stapleton, J. Kummerfeld, **J. Hauswald**, M. Laurenzano, L. Tang, J. Mars.

*US Patent 10,824,818. 2020.*

**Systems and methods for constructing an artificially diverse corpus of training data samples for training a contextually-biased model for a machine learning-based dialogue system.**

A. Lee, S. Larson, C. Clarke, K. Leach, J. Kummerfeld, P. Hill, **J. Hauswald**, M. Laurenzano, L. Tang, J. Mars.

*US Patent 10,796,104. 2020.*

**Systems and methods for intelligently configuring and deploying a machine learning-based dialogue system.**

J. Mars, L. Tang, M. Laurenzano, **J. Hauswald**, P. Hill, Y. Kang, Y. Zhang.

*US Patent 10,740,371, 10,769,384. 2020.*

**Systems and methods for automatically configuring training data for training machine learning models of a machine learning-based dialogue system including seeding training samples or curating a corpus of training data based on instances of training data identified as anomalous.**

S. Larson, A. Mahendran, A. Lee, J. Kummerfeld, P. Hill, M. Laurenzano, **J. Hauswald**, L. Tang, J. Mars.

*US Patent 10,679,150. 2020.*

**System and method for implementing an artificially intelligent virtual assistant using machine learning.**

J. Mars, L. Tang, M. Laurenzano, **J. Hauswald**, P. Hill.

*US Patent 10,572,801. 2020.*

**Systems and methods for intelligently curating machine learning training data and improving machine learning model performance.**

Y. Kang, Y. Zhang, J. Kummerfeld, P. Hill, **J. Hauswald**, M. Laurenzano, L. Tang, J. Mars.

*US Patent 10,303,978, 10,679,100. 2019.*

**Systems and method for automatically configuring machine learning models.**

J. Mars, L. Tang, M. Laurenzano, **J. Hauswald**.

US Patent 10,296,848. 2019.

**Tutorials**

**Tail Latency Measurement at Microsecond-Level Precision**

Y. Zhang, **J. Hauswald**, D. Meisner, J. Mars, L. Tang.

ASPLOS, 2017

**Sirius and DjiNN: Infrastructures to Study Emerging Intelligent Web Services**

**J. Hauswald**, M. Laurenzano, Y. Kang, Y. Zhang, L. Tang, J. Mars.

HPCA, 2016

**Sirius: An Open End-to-End Voice and Vision Personal Assistant like Apple's Siri, Google's Now, Microsoft's Cortana, and Amazon's Echo**

**J. Hauswald**, M. Laurenzano, Y. Kang, Y. Zhang, L. Tang, J. Mars.

ASPLOS, 2015

**Experience**

**Stanford & Sutter Hill Ventures**

Postdoctoral Researcher

Palo Alto, CA

Sep 2021 - Current

**Clinc, Inc.**

Chief Architect & Cofounder

Chief Customer Officer & Cofounder

Chief Product Officer & Cofounder

Chief Architect & Cofounder

Ann Arbor, MI

Oct 2020 - Feb 2021

Mar 2020 - Sep 2020

Aug 2018 - Mar 2020

Jul 2015 - Jul 2018

**TRon Lab & Clarity Lab**

Graduate Student Research Assistant

Ann Arbor, MI

2013 - 2017

**Cassidian Air Systems**

Software Engineer, Sensor & Weapons Integration Group

Munich, Germany

Summer 2012

**Lynx Technik AG**

Summer Intern, R&D Department

Darmstadt, Germany

Summer 2011

**Grants**

Senior Personnel, National Science Foundation Small Business Innovation Research (NSF SBIR Phase II) program award #1738441: *Pushing the Boundaries of Intelligent Assistants for Financial Services (\$750k)*, 2017 – 2019

Senior Personnel, Michigan Emerging Technologies Fund (MI ETF) supplement to NSF SBIR Phase II award #1738441 (\$125k), 2017 – 2019

Senior Personnel, National Science Foundation Small Business Innovation Research (NSF SBIR Phase I) program award #1622049: *An Open Source Platform for Intelligent Personal Assistants (\$225k)*, 2016 – 2017

**Service**

Detroit Area Pre-College Engineering Program (DAPCEP)

Volunteer Instructor - Intro to CS and AI

CGO Workshop & Tutorials Chair

ASPLOS Shadow PC Co-organizer

ASPLOS External Reviewer

2020, 2021

2020

2018

2015, 2016, 2017, 2018, 2019

ISCA External Reviewer	2015, 2016, 2018, 2019
MICRO External Reviewer	2015, 2016
EuroSys Shadow PC	2017
CGO-PPoPP Artifact Evaluation Committee	2017
UMich CSE Lunch & Lab Mentoring	2016, 2017

## Mentorship

Austin Rovinski (PhD, University of Michigan)  
Cheng Li (PhD, UIUC)  
Yunsheng Bai (PhD, UCLA)  
Xiaowei Wang (PhD, University of Michigan)  
Peifeng Yu (PhD, University of Michigan)  
Arjun Khurana (MS, University of Michigan)  
Yifan Hao (MS, UIUC)  
Zihuan Diao (MS, Stanford)  
Ali Turfah (MS, Columbia)  
Moeiz Riaz (Intel)