Brandon Haynes

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Education

2014 - Present	PhD, Computer Science, University of Washington *Research Advisors: Magda Balazinska & Alvin Cheung*
2016	MS, Computer Science, University of Washington
2014	ALM, Software Engineering, Harvard University *Thesis: Temporal Iterative Map/Reduce (Dean's Prize for Outstanding Thesis)* *Advisor: Margo Seltzer*
2006	BS, Computer Science, University of Illinois at Urbana-Champaign

Publications

M. Daum, **B. Haynes**, A. Mazumdar, M. Balazinska, L. Ceze, A. Cheung. Video Cracking: Robust Tiling for Video Analytics. In preparation.

B. Haynes, M. Daum, A. Mazumdar, M. Balazinska, L. Ceze, A. Cheung. VFS: A File System for Video Analytics. Under review.

A. Mazumdar, **B. Haynes**, M. Daum, M. Balazinska, L. Ceze, A. Cheung. MVDO: Leveraging Irregularity in Virtual Reality Video for Energy-Efficient Hardware Decoding. Under review.

B. Haynes, M. Daum, A. Mazumdar, M. Balazinska, L. Ceze, A. Cheung. VisualWorldDB: A DBMS for the Visual World. To appear in CIDR, 2020.

B. Haynes, A. Mazumdar, M. Balazinska, L. Ceze, A. Cheung. Visual Road: A Video Data Management Benchmark. In SIGMOD, 2019.

A. Mazumdar, **B. Haynes**, M. Balazinska, L. Ceze, A. Cheung, M. Oskin. Perceptual Compression for Video Storage and Processing Systems. In SoCC, 2019. [***Best Poster Award***]

B. Haynes, A. Mazumdar, A. Alaghi, M. Balazinska, L. Ceze, A. Cheung. LightDB: A DBMS for Virtual Reality. In VLDB 2018.

B. Haynes, A. Minyaylov, M. Balazinska, L. Ceze, A. Cheung. VisualCloud Demonstration: A DBMS for Virtual Reality. In SIGMOD, 2017 [***Best Demonstration Honorable Mention***].

J. Wang, T. Baker, M. Balazinska, D. Halperin, **B. Haynes**, et al. The Myria Big Data Management and Analytics System and Cloud Service. In CIDR, 2016.

B. Haynes, M. Balazinska, A. Cheung. PipeGen: Data Pipe Generator for Hybrid Analytics. In SoCC, 2016.

V. Gadepally, P. Chen, J. Duggan, A. Elmore, **B. Haynes**, J. Kepner, S. Madden, T. Mattson, and M. Stonebraker. The BigDAWG polystore system and architecture. In HPEC, 2016.

B. Haynes. Temporal-Iterative Map/Reduce. Master's thesis, Harvard University, 2014.

Invited Talks (Selected)

VisualWorldDB: A DBMS for the Visual World. NWDS, 2020; CIDR, 2020.

Data Management for Video Analytics. NWDS, 2017-2019.

Visual Road: A Video Data Management Benchmark. SIGMOD, 2019.

LightDB: A DBMS for Virtual Reality. Google (2017: Fremont, 2018: Kirkland),
ASPLUW (2017: Seattle, 2018: Bainbridge),
UW Reality Lab (2018)
VLDB (2018)

PipeGen: Data Pipe Generator for Hybrid Analytics. SoCC, 2016.

A. Elmore, et al. A Demonstration of the BigDAWG Polystore System. VLDB, 2015.

Big Data Management and Analytics with the Myria Cloud Service. eScience Institute, 2015.

Advanced Messaging and Notification Patterns. DNNWorld, 2012.

Services Framework Security and Development Patterns. DNNWorld, 2012.

File System Abstractions. DNNWorld, 2011.

Map/Reduce in Module Development. DoDNN, 2010.

Effective Auditing and Logging. DevConnections / OpenForce, 2010.

Authorization & Authentication Patterns. OpenForce Europe / SDC2010, 2010.

Software Extension Design Patterns. OpenForce Europe / SDC2010, 2010.

Secure Development Patterns. OpenForce Europe / SDC2010, 2010.

Secure Development: Theory, Techniques, and Practice. DevConnections, 2009.

Advanced Authorization Techniques. OpenForce Connect, 2009.

Conference Posters

B. Haynes, M., Balazinska, & A. Cheung. Federated Analytics & the Need for Automatically-Generated Connectors. Intel Science and Technology Center (ISTC) Big Data Retreat. Hillsboro, OR, 2015.

B. Haynes. Increasing Performance of Parallel Single-Source Breadth-First Search under Map/Reduce. XSEDE, San Diego, 2013.

White Papers

B. Haynes. Multifactor Authentication for the DNN Platform Open-Source Content Management Web Application Framework (White paper). DNN Software, Vancouver, 2009.

Unrefereed Publications

B. Haynes. Advanced Authentication Techniques. Software Development Network, 2009.

B. Haynes. Security Services under DNN. Software Development Network, 2009.

B. Haynes. Rapid Development using LINQ to SQL. Software Development Network, 2008.

Research Experience

2016 - Present Research Assistant, University of Washington
LightDB, Visual Road, VFS, VisualWorldDB
Advisors: Magda Balazinska, Alvin Cheung, & Luis Ceze

2016 Research Intern, Microsoft Research (Redmond)
Rectitude: A Framework for Resilient & Distributed Verified Memory
Advisor: Arvind Arasu

2014 - 2016 Research Assistant, University of Washington
PipeGen: Automatic Generation of Data Pipes for Hybrid Analytics
Advisors: Magda Balazinska & Alvin Cheung

2004 Research Assistant, University of Illinois at Urbana-Champaign
A Framework for Multiuser Real-Time Collaboration
Advisor: Jane Liu

Teaching Experience

Winter 2019 Scalable Data Systems and Algorithms (CSED516)
University of Washington, Computer Science & Engineering

Spring 2016 Database Systems Internals (CSE444)
University of Washington, Computer Science & Engineering

Fall 2012 & Fall 2013 Foundations for Computational Science (CS205)
Harvard University, Institute for Applied Computational Science

Fall 2013 Data Science (CS109)
Harvard University, School of Engineering and Applied Sciences

Grants & Funding

2018 UW Reality Lab Funding Award

2014 Co-PI, Startup Grant, Extreme Science and Engineering Discovery Environment
San Diego Supercomputing Center

Undergraduate Research Advisees

2017 Yingkai Wang, Anupam Gupta

2018 Sophia Tevosyan, Armaan Sood

2019 Pranay Mundra

Professional Experience

2012 - 2014 Chief Technology Officer, Everysport.net Inc.
Post-acquisition guidance and technical leadership.
Top-25 regional fastest-growing private company.

2006 - 2012 Chief Executive Officer, Everysport.net Inc.
Five-year Inc. Magazine top-5000 fastest-growing company (2009-2013).
Acquired by Togetherwork.

Honors & Awards

University of Washington Reality Lab Awardee (2018)
Madrona Prize, Runner-Up (Madrona Venture Group, 2016)
Computer Science & Engineering Research Fellowship (University of Washington, 2014)
Dean's Prize for Outstanding Thesis (Harvard University, 2014)
Class Marshal Award for Academic Distinction (Harvard University, 2014)
Dean's List Certificate for Academic Achievement (Harvard University, 2014)
MVP, DNN Platform Open-Source Contributor (2012-2013)
Silver Award, Second Harvest Food Bank (2009)
Edmund J. James Scholar (University of Illinois)
Dean's List (University of Illinois)

Service & Professional Activities

Mentoring for high school students, Strive for College (2018-2019)
Consultation & mentorship for minority-owned startups, Impact Hub/Hack Nation (2017-2018)
Graduate Admissions Committee (2016-2019)
DNN Platform Security Workgroup (2009-2013)
Trustee, DNN Platform (2009-2012)
Software vulnerability disclosures (CVE-2012-1030, OSVDB-79987, OSVDB-78828, etc.)