

# AWS ALBARGHOUTHI

## Address:

Computer Sciences Department  
University of Wisconsin–Madison  
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<b>Education</b>	<b>University of Toronto</b> , Toronto, ON, Canada PhD, Computer Science Advisor: Marsha Chechik Thesis: Software Verification with Program-Graph Interpolation and Abstraction Feb 2010 – November 2014
	<b>University of Toronto</b> , Toronto, ON, Canada MSc, Computer Science Advisor: Marsha Chechik Thesis: Abstract Analysis via Symbolic Executions Sept 2008 – Jan 2010
	<b>McMaster University</b> , Hamilton, ON, Canada BEng, Software Engineering, <i>Summa cum laude</i> Sept 2004 – Apr 2008
<b>Professional Experience</b>	<b>Associate Professor</b> <i>Computer Sciences Department, University of Wisconsin–Madison, Madison, WI</i> Aug 2021 – present
	<b>Assistant Professor</b> <i>Computer Sciences Department, University of Wisconsin–Madison, Madison, WI</i> Jan 2015 – Aug 2021
	<b>Research Intern</b> <i>Microsoft Research Cambridge, Cambridge, UK</i> Advisors: Byron Cook and Josh Berdine March 2013 – May 2013
	<b>Research Intern</b> <i>Microsoft Research Redmond, Redmond, WA, USA</i> Advisor: Kenneth McMillan June 2012 – Sept 2012
	<b>Research Intern</b> <i>Microsoft Research India, Bangalore, India</i> Advisor: Aditya Nori April 2011 – July 2011
	<b>Undergraduate Researcher</b> <i>Department of Computing and Software, McMaster University</i> Advisor: Wolfram Kahl May 2007 – Aug 2007
	<b>Undergraduate Researcher</b> <i>Department of Computing and Software, McMaster University</i> Advisors: Wolfram Kahl and Christopher Anand Apr 2006 – Aug 2006

**Refereed  
Conference  
and Workshop  
Papers**

**Below, authors tagged with A are/were my graduate/undergraduate advisees.**

Zi Wang, Aws Albarghouthi, Gautam Prakriya, and Somesh Jha. Interval Universal Approximation for Neural Networks. In *Proceedings of the 46th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, Philadelphia, PA, January 2022.

Anna Meyer<sup>A</sup>, Aws Albarghouthi, and Loris D'Antoni. Certifying Robustness to Programmable Data Bias in Decision Trees. In *Proceedings of the Conference on Neural Information Processing Systems (NeurIPS)*, Online due to COVID-19, December 2021.

Yuhao Zhang<sup>A</sup>, Aws Albarghouthi, and Loris D'Antoni. Certified Robustness to Programmable Transformations in LSTMs. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Punta Cana, Dominican Republic, November 2021.

Subhajit Roy, Justin Hsu, and Aws Albarghouthi. Learning Differentially Private Mechanisms. In *Proceedings of the 42nd IEEE Symposium on Security and Privacy (S&P)*, Online due to COVID-19, May 2021.

David Porfirio<sup>A</sup>, Laura Stegner, Maya Cakmak, Allison Sauppé, Aws Albarghouthi, and Bilge Mutlu. Figaro: A Tabletop Authoring Environment for Human-Robot Interaction. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)*, Online due to COVID-19, May 2021.

Yuhao Zhang<sup>A</sup>, Aws Albarghouthi, Loris D'Antoni. Robustness to Programmable String Transformations via Augmented Abstract Training *Proceedings of the 37th International Conference on Machine Learning (ICML)*, Online due to COVID-19, July 2020

Jiani Huang, Calvin Smith<sup>A</sup>, Osbert Bastani, Rishabh Singh, Aws Albarghouthi, Mayur Naik. Generating Programmatic Referring Expressions via Program Synthesis. *Proceedings of the 37th International Conference on Machine Learning (ICML)*, Online due to COVID-19, July 2020

Samuel Drews<sup>A</sup>, Aws Albarghouthi, Loris D'Antoni. Proving Data-Poisoning Robustness in Decision Trees. *Proceedings of the 40th ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI)*, Online due to COVID-19, June 2020

**SIGPLAN research highlight**

Goutham Ramakrishnan<sup>A</sup>, Yunchan Lee<sup>A</sup>, and Aws Albarghouthi. Synthesizing Action Sequences for Modifying Model Decisions. In *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI)*, New York City, NY, February 2020.

David Porfirio<sup>A</sup>, Allison Sauppé, Aws Albarghouthi, and Bilge Mutlu. Transforming Robot Programs Based on Social Context. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)*, Honolulu, Hawaii, April 2020.

David Porfirio<sup>A</sup>, Evan Fisher<sup>A</sup>, Allison Sauppé, Aws Albarghouthi, and Bilge Mutlu. Bodystorming Human-Robot Interactions. In *Proceedings of the 32nd ACM User Interface Software and Technology Symposium (UIST)*, New Orleans, LA, October 2019.

Calvin Smith<sup>A</sup> and Aws Albarghouthi. Synthesizing Differentially Private Programs In *Proceedings of the 24th ACM SIGPLAN International Conference on Functional Programming (ICFP)*, Berlin, Germany, August 2019.

Aws Albarghouthi, Loris D'Antoni, and Samuel Drews<sup>A</sup>. Efficient Synthesis with Probabilistic Constraints. In *Proceedings of the 31st International Conference on Computer Aided Verification (CAV)*, New York, NY, July 2019.

Zhiwei Fan<sup>A</sup>, Jianqiao Zhu, Zuyu Zhang, Aws Albarghouthi, Paraschos Koutris, and Jignesh Patel. Scaling-Up In-Memory Datalog Processing. In *Proceedings of the 45th International Conference on Very Large Data Bases (VLDB)*, Los Angeles, CA, August 2019.

Calvin Smith<sup>A</sup>, Justin Hsu, and Aws Albarghouthi. Trace Abstraction Modulo Probability. In *Proceedings of the 46th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, Lisbon, Portugal, January 2019.

Calvin Smith<sup>A</sup> and Aws Albarghouthi. Program Synthesis with Equivalence Reduction. In *Proceedings of the 20th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, Lisbon, Portugal, January 2019.

Aws Albarghouthi and Samuel Vinitzky<sup>A</sup>. Fairness-Aware Programming. In *Proceedings of the 2nd ACM Conference on Fairness, Accountability, and Transparency (FAT\*)*, Atlanta, GA, January 2019.

Xujie Si, Woosuk Lee, Richard Zhang, Aws Albarghouthi, Paraschos Koutris and Mayur Naik. Syntax-Guided Synthesis of Datalog Programs In *Proceedings of the 12th Joint Meeting on Foundations of Software Engineering (ESEC/FSE)*, Orlando, FL, November 2018.

Jinman Zhao<sup>A</sup>, Aws Albarghouthi, Vaibhav Rastogi, Somesh Jha and Damien Oceau. Neural-Augmented Static Analysis of Android Communication In *Proceedings of the 12th Joint Meeting on Foundations of Software Engineering (ESEC/FSE)*, Oralando, FL, November 2018.

David Porfirio<sup>A</sup>, Allison Sauppé, Aws Albarghouthi, and Bilge Mutlu. Authoring and Verifying Human-Robot Interactions. In *Proceedings of the 31st ACM User Interface Software and Technology Symposium (UIST)*, Berlin, Germany, October 2018.

**Best paper award**

Aws Albarghouthi. Fairness: A Formal-Methods Perspective. In *Proceedings of the 24th International Static Analysis Symposium (SAS)*, Freiburg, Germany, August 2018.

Aws Albarghouthi and Justin Hsu. Constraint-Based Synthesis of Coupling Proofs. In *Proceedings of the 30th International Conference on Computer Aided Verification (CAV)*, Oxford, UK, July 2018.

Aws Albarghouthi and Justin Hsu. Synthesizing Coupling Proofs of Differential Privacy. In *Proceedings of the 45th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, Los Angeles, USA, January 2018.

Ramnatthan Alagappan, Aishwarya Ganesan, Vijay Chidambaram, Aws Albarghouthi, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau. Protocol-Aware Recovery for Consensus-Based Storage. In *Proceed-*

*ings of File and Storage Technologies (FAST)*, 2018.

**Best paper award**

Long version invited to and appeared at *ACM Transactions of Storage (TOS)*, Volume 14, Issue 3.

Bas Ketsman, Aws Albarghouthi, and Paris Koutris. Distribution Policies for Datalog. In *Proceedings of the 21st International Conference on Databases Theory (ICDT)*, Vienna, Austria, March 2018.

Long version invited to the *Theory of Computing Systems (ToCS)*

Aws Albarghouthi, Loris D'Antoni, Samuel Drews<sup>A</sup>, and Aditya Nori. FairSquare: Probabilistic Verification for Program Fairness. In *Proceedings of the ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Vancouver, Canada, October 2017.

Calvin Smith<sup>A</sup>, Gabriel Ferns<sup>A</sup>, and Aws Albarghouthi. Discovering Relational Specifications. In *Proceedings of the 11th Joint Meeting on Foundations of Software Engineering (ESEC/FSE)*, Paderborn, Germany, September 2017.

**Best paper award**

Aws Albarghouthi, Paraschos Koutris, Mayur Naik, and Calvin Smith<sup>A</sup>. Constraint-based Synthesis of Datalog Programs. In *Proceedings of the 23rd International Conference on Principles and Practice of Constraint Programming (CP)*, Melbourne, Australia, August 2017.

David Merrell<sup>A</sup>, Aws Albarghouthi, and Loris D'Antoni. Weighted Model Integration via Orthogonal Transformations. In *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI)*, Melbourne, Australia, August 2017.

Aws Albarghouthi. Probabilistic Horn Clause Verification. In *Proceedings of the 24th International Static Analysis Symposium (SAS)*, New York, USA, August 2017.

Aws Albarghouthi, Loris D'Antoni, and Samuel Drews<sup>A</sup>. Repairing Decision-Making Programs Under Uncertainty. In *Proceedings of the 29th International Conference on Computer Aided Verification (CAV)*, Heidelberg, Germany, July 2017.

Aws Albarghouthi, Loris D'Antoni, Samuel Drews<sup>A</sup>, and Aditya Nori. Fairness as a Program Property. In *The 3rd Workshop on Fairness, Accountability, and Transparency in Machine Learning (FATML)*, New York, USA, November 2016.

Samuel Drews<sup>A</sup> and Aws Albarghouthi. Effectively Propositional Interpolants. In *Proceedings of the 28th International Conference on Computer Aided Verification (CAV)*, Toronto, Canada, July 2016.

Calvin Smith<sup>A</sup> and Aws Albarghouthi. MapReduce Program Synthesis. *Proceedings of the 37th ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI)*, Santa Barbara, USA, June 2016.

Aws Albarghouthi, Isil Dillig, and Arie Gurfinkel. Maximal Specification Synthesis. In *Proceedings of the 43rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, St. Petersburg, USA, January 2016.

Ramnatthan Alagappan, Vijay Chidambaram, Thanumalayan Sankaranarayana Pillai, Aws Albarghouthi, Andrea Arpaci-Dusseau, and Remzi Arpaci-Dusseau. Beyond Storage APIs: Provable Semantics for Storage Stacks. In *Proceedings of the 15th Workshop on Hot Topics in Operating Systems (HotOS)*, USENIX Association, Kartause Ittingen, Switzerland, May 2015.

Aws Albarghouthi, Josh Berdine, Byron Cook, and Zachary Kincaid. Spatial Interpolants. In *Proceedings of the 23rd European Symposium on Programming (ESOP)*, London, UK, April 2015.

**The following papers were published before my start at the University of Wisconsin–Madison**

Yi Li, Aws Albarghouthi, Zachary Kincaid, Arie Gurfinkel, and Marsha Chechik. Symbolic Optimization with SMT Solvers. In *Proceedings of the 41st ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, San Diego, USA, January 2014.

Aws Albarghouthi and Kenneth McMillan. Beautiful Interpolants. In *Proceedings of the 25th International Conference on Computer Aided Verification (CAV)*, Saint Petersburg, Russia, July 2013.

Aws Albarghouthi, Sumit Gulwani, and Zachary Kincaid. Recursive Program Synthesis. In *Proceedings of the 25th International Conference on Computer Aided Verification (CAV)*, Saint Petersburg, Russia, July 2013.

Aws Albarghouthi, Arie Gurfinkel, Yi Li, Sagar Chaki, and Marsha Chechik. UFO: Verification with Interpolants and Abstract Interpretation. In *Proceedings of the 19th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, Rome, Italy, March 2013. *International Competition on Software Verification (SV-COMP 2013) Contribution.*

**Winner of 4 gold medals and 1 bronze medal**

Aws Albarghouthi, Arie Gurfinkel, and Marsha Chechik. Craig Interpretation. In *Proceedings of the 19th International Static Analysis Symposium (SAS)*, Deauville, France, September 2012.

Aws Albarghouthi, Yi Li, Arie Gurfinkel, and Marsha Chechik. UFO: A Framework for Abstraction- and Interpolation-Based Software Verification. In *Proceedings of the 24th International Conference on Computer Aided Verification (CAV)*, Berkeley, CA, USA, July 2012.

Aws Albarghouthi, Rahul Kumar, Aditya Nori, and Sriram Rajamani. Parallelizing Top-down Interprocedural Analyses. In *Proceedings of the 33rd ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI)*, Beijing, China, June 2012.

Aws Albarghouthi, Arie Gurfinkel, and Marsha Chechik. From Under-approximations to Over-approximations and Back. In *Proceedings of the 18th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, Tallinn, Estonia, March 2012.

Aws Albarghouthi, Arie Gurfinkel, and Marsha Chechik. WHALE: An Interpolation-based Algorithm for Inter-procedural Verification. In *Proceedings of the 13th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, Philadelphia, US, January 2012.

Aws Albarghouthi, Arie Gurfinkel, Ou Wei, and Marsha Chechik. Abstract Analysis of Symbolic Executions. In *Proceedings of the 22nd International Conference on Computer Aided Verification (CAV)*, Edinburgh, UK, July 2010.

Aws Albarghouthi, Jorge Baier, and Sheila McIlraith. On the Use of Planning Technology for Verification. In *Proceedings of Verification and Validation of Planning and Scheduling Systems Workshop (VVPS)*, Thessaloniki, Greece, September 2009.

## Talks

A Tale of Two Applications of Verification in Machine Learning

- University of Waterloo, Canada, December 2020.
- University of San Diego, San Diego, CA, January 2021.
- IST Austria, June 2021.

Fairness, Privacy, and Automated Verification

- UIUC, Urbana-Champaign, IL, April 2019.
- University of Toronto, Canada, June 2019.
- Microsoft Research, Redmond, WA, September 2019.
- UMD, College Park, MD, October 2019.
- Invited Participant: Dependable and Secure Software Systems, ETH, Switzerland, October 2019.
- UC Berkeley, Berkeley, CA, October 2019.

Exploring Code Embeddings

Invited Participant: Probability and Programming Workshop, Bellevue, WA, September 2019.

Differential Privacy Meets Automated Verification

Invited Participant: Simons Institute, Berkeley, CA, March 2019.

Fairness Through the Lens of Formal Methods

Keynote: Static Analysis Symposium, Freiburg, Germany, September 2018.

Invited Panelist: Better By Design Conference, Madison, WI, August 2018.

Fairness Through the Lens of Formal Methods

Keynote: FairWare Workshop at ICSE 2018, Gothenburg, Sweden, May 2018.

The FairSquare Project: Countering Programs that Discriminate

CPCP Privacy/Fairness Seminar at the Wisconsin Institute for Discovery, Wisconsin, USA, October 2017.

Dagstuhl seminar: Approaches and Applications of Inductive Programming Dagstuhl, Germany, September 2017.

The BIGA Project: Synthesizing Data Analytics

The FairSquare Project: Countering Programs that Discriminate

Invited Talk: The Summit on Advances in Programming Languages (SNAPL 2017), Asilomar, USA, May 2017.

Synthesizing Data-parallel Programs

Invited Talk: Workshop on Reasoning about Declarative Programs (RDP), Paris, France, January 2017.

Proving that Programs do not Discriminate

- University of Pennsylvania, November 2016.
- Big Privacy: Policy Meets Data Science Symposium, Center for Predictive Computational Phenotyping, UW-Madison, October 2016.
- University of California, Berkeley, October 2016.
- Stanford University, October 2016.
- Facebook London, September 2016.

Synthesizing Big and Small

University of Iowa, December 2015.

From Bounded to Unbounded Proofs of Correctness

- Georgia Institute of Technology, November 2013.
- Microsoft Research Cambridge, April 2013.

Battling the Infinite: Proving Safety of Programs

- University College London, March 2013.
- Technische Universität München, March 2013.

Craig Interpretation

Microsoft Research Cambridge, Cambridge, UK, September 2012.

Beautiful Proofs

Microsoft Research Redmond, September 2012.

Conference and workshop presentations: VVPS (at ICAPS 2009), CAV 2010, VMCAI 2012, POPL SRC 2012, TACAS 2012, PLDI 2012, SAS 2012, CAV 2012, HCSS 2012, CAV 2013, IPrA (at CAV 2013), POPL 2014, IPrA (at CAV 2014), ESOP 2015, POPL 2016, SAS 2017, POPL 2018, CAV 2018, VMW 2019 (at CAV 2019).

## Funding

NSF: SHF: Medium: Program Synthesis for Weak Supervision. Aws Albarghouthi (PI) and Frederic Sala (Co-PI). 2021, \$900,000.

Facebook Programming Languages and Probability Research Award.

Loris D'Antoni (PI) and Aws Albarghouthi (Co-PI).

2020, \$50,000.

Facebook Programming Languages and Probability Research Award.  
 Aws Albarghouthi (PI) and Loris D'Antoni (Co-PI).  
 2020, \$50,000.

Facebook Programming Languages and Probability Research Award.  
 Aws Albarghouthi (PI) and Somesh Jha (Co-PI).  
 2019, \$50,000.

NSF: NRI: INT: COLLAB: Program Verification and Synthesis for Collaborative Robots.  
 Bilge Mutlu (PI), Allison Sauppe (Co-PI), Aws Albarghouthi (Co-PI).  
 September 2019 – August 2023, \$958,887.  
*Joint with Maya Cakmak and Rastislav Bodik (University of Washington), \$540,894*

NSF: FMitF: Track I: Formal Methods for Explainable Machine Learning.  
 Loris D'Antoni (PI), Vikas Singh (Co-PI), Aws Albarghouthi (Co-PI).  
 October 2019 – September 2022, \$750,000

NSF: SHF: Medium: Formal Methods for Program Fairness.  
 Aws Albarghouthi (PI), Xiaojin Zhu (Co-PI), Shuchi Chawla (Co-PI), Loris D'Antoni (Co-PI).  
 September 2017 – May 2020, \$1,014,107.

NSF: CAREER: Algorithmic Foundations and Modern Applications for Program Synthesis.  
 Aws Albarghouthi (PI).  
 July 2017 – June 2022, \$450,000.

NSF: EAGER: Representations and Methods for Verifiable Human-Robot Interactions.  
 Bilge Mutlu (PI), Aws Albarghouthi (Co-PI), and Allison Sauppe (Co-PI).  
 September 2016 – August 2018, \$299,877.

NSF: US Ignite: Focus Area 2: An Infrastructure to support Edge Computing in the Extreme.  
 Suman Banerjee (PI) and Aws Albarghouthi (Co-PI).  
 January 2017 – December 2020, \$600,000.

NSF: CRII: SHF: Optimal Interpolation for Efficient Proof Synthesis.  
 Aws Albarghouthi (PI).  
 September 2016 – August 2018, \$175,000.

Google Faculty Research Award.  
 2015, \$31,542.

## Teaching Experience

### Instructor:

*Computer Sciences Department, University of Wisconsin–Madison*

- Verified Deep Learning (CS 839) Spring 2020
- Principles of Programming Languages (CS 704) Spring 2015–2019, 2021
- Introduction to Compilers and Programming Languages (CS 536) Fall 2015, 2017–2021

### Teaching Assistant:

*Department of Computer Science, University of Toronto*



- Introduction to Computer Programming Fall 2010
- Introduction to Software Engineering Fall 2009
- Data Structures and Algorithms Spring 2009
- Software Design Fall 2008

*Faculty of Engineering, McMaster University*

- Engineering Computation Fall 2006, 2007; Spring 2008

## Advisees

### Current graduate students

- David Porfirio
- Yuhao Zhang
- Anna Meyer

### Postdoctoral Fellows

- Lauren Pick (2021–2023)  
*CI Postdoctoral Fellow*

### Former graduate Students:

- Calvin Smith (PhD, 2020)  
*Program Synthesis for Data Analysis: Scalability and Privacy*  
Next position: Postdoctoral fellow at University of Texas, Austin
- Goutham Ramakrishnan (MSc, 2020)  
*Synthesizing Action Sequences for Modifying Model Decisions*  
Next position: Machine Learning Software Engineer at Health[at]Scale
- Yun Chan Lee (Professional MSc, 2019)  
Next position: Front-End Engineer at AWS
- Samuel Drews (PhD, 2021)  
*Fairness, Correctness, and Automation*  
Next position: Software Engineer at Facebook
- Jinman Zhao (PhD, 2021)  
*Structures and Compositions for Learning Code and Language Naturalness*  
Next position: Applied Scientist at Amazon

### Undergraduate Students (directly supervised)

- Loyal Khreis (Fall 2021)
- Michael Messer (Fall 2021)  
*Undergraduate thesis: Type-directed synthesis in Idris*
- Harrison Brewton (Spring 2020)  
*Undergraduate thesis: A Code Search Engine for Go*
- Aiden Song (Spring 2019)
- Evan Fisher (Summer 2018)  
*Research Experience for Undergraduates (REU) from UW–La Crosse*
- Gabriel Ferns (Summer 2016)

### Undergraduate Students (supervised by a graduate student)

- Garrett He (Spring 2020, with Samuel Drews)
- Yingdong Chen (Spring 2019, with Jinman Zhao)
- Ezra Boley, Akshat Khanna, Pranav Rajiv, Yue Sun, Raghav Bagwat, Sherine Zhang, Ali Zaidi, Chentao Wang, Zhechun Zhou, Arabella Yao, Mikayla Buford, Bohao Zhang, Ayush Kumar, Jason Zhao, Naman Maheshwari, Linda Wu, Zhengliang Liu (2017 – present, with David Porfirio)

**Visitors**

Subhajit Roy  
Associate Professor, IIT Kanpur, 2019–2020  
*Fullbright Visiting Scholar*

**PhD  
Committees**

Matthew Mirman (ETH)  
Zhiwei Fan (CS, University of Wisconsin–Madison)  
Jordan Henkel (CS, University of Wisconsin–Madison)  
Michael Vaughn (CS, University of Wisconsin–Madison)  
Areen Alsaid (ISyE, University of Wisconsin–Madison)  
Jason Breck (CS, University of Wisconsin–Madison)  
Tushar Sharma (CS, University of Wisconsin–Madison)  
Ramnatthan Alagappan (CS, University of Wisconsin–Madison)  
Venkatesh Srinivasan (CS, University of Wisconsin–Madison)  
Peter Ohmann (CS, University of Wisconsin–Madison)  
Peng Liu (CS, University of Wisconsin–Madison)  
Linhai Song (CS, University of Wisconsin–Madison)  
Drew Davidson (CS, University of Wisconsin–Madison)  
Dibakar Gope (ECE, University of Wisconsin–Madison)

**Professional  
Activities**

**Departmental/University Service:**  
Chair advisory committee (2021).  
Faculty recruiting committee (2021).  
Associate faculty liaison (2020, 2021).  
Undergraduate liaison (2019).  
Graduate admissions committee (2015–2021).

**Steering Committee:**

Conference on Fairness, Accountability, and Transparency (FAT\*).

**Committee (Co-)Chair:**

Co-chair of 3rd Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS 2020, 2021).  
Track co-chair (PL, DB, Sys), Conference on Fairness, Accountability, and Transparency (FAT\* 2018,2019).  
Artifact Evaluation Committee (AEC), Conference on Computer Aided Verification (CAV 2016).  
Publicity chair of the 5th Annual Symposium on Machine Programming (MAPS 2021).

**Program Committee Member:**

Conference on Programming Languages Design and Implementation (PLDI 2022).  
 Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2022).  
 Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2022).  
 ICML Workshop on Algorithmic Recourse (2021).  
 ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT 2021)  
 AAAI Conference on Artificial Intelligence (AAAI 2021)  
 International Joint Conferences on Artificial Intelligence (IJCAI 2021).  
 Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2021).  
 ACM SIGPLAN Machine Learning and Programming Languages Workshop (MAPL 2020).  
 Conference on Computer Aided Verification (CAV 2020).  
 Conference on Programming Languages Design and Implementation (PLDI 2020).  
 Conference on Functional Programming (ICFP 2020, ERC).  
 Workshop on Privacy-Preserving Artificial Intelligence (PPAI@AAAI 2020).  
 Conference on Verified Software: Theories, Tools, and Experiments (VSTTE 2019).  
 Conference on Computer Aided Verification (CAV 2019).  
 Symposium on Principles of Programming Languages (POPL 2019).  
 Workshop on Theory and Practice in Differential Privacy (TPDP 2019).  
 Conference on Computer Aided Verification (CAV 2018).  
 Conference on Software Engineering (ICSE 2018) – doctoral symposium.  
 Symposium on Automated Technology for Verification and Analysis (ATVA 2018).  
 Asian Symposium on Programming Languages and Systems (APLAS 2017).  
 Conference on Computer Aided Verification (CAV 2017).  
 Conference on Programming Languages Design and Implementation (PLDI 2017) – ERC.  
 Conference on Programming Languages Design and Implementation (PLDI 2016) – ERC.  
 Conference on Computer Aided Verification (CAV 2016) – ERC.  
 Conference on Software Engineering (ICSE 2016) – Demos.  
 Conference on Tools and Algorithms for Construction and Analysis of Systems (TACAS 2016)  
 Conference on Programming Languages Design and Implementation (PLDI 2016) – SRC.  
 Conference on Computer Aided Verification (CAV 2015).  
 Conference on Computer Aided Verification (CAV 2015) – AEC  
 Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2015)  
 Competition on Software Verification (SV-COMP 2014).

**Journal Reviews:** Journal of the ACM (JACM); Journal of Automated Reasoning (JAR); Journal of Software Testing, Verification and Reliability (STVR); Transactions on Software Engineering (TSE).

**Grant Review Panels:** NSF, 2015; NSF, 2017; NSF, 2019; NSF, 2020

**Conference and Workshop Reviewing:** ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2019), International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2020), International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2019), International Conference on Computer Aided Verification (CAV 2013), International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2013), ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (PASTE 2013), International Symposium on the Foundations of Software Engineering (FSE 2012), International Symposium on Formal Methods (FM 2012), Asian Symposium on Programming Languages and Systems (APLAS 2012), International Symposium on Automated Technology for Verification and Analysis (ATVA 2012), International Conference on Fundamental Approaches to Software Engineering (FASE 2012), International Conference on Verification, Model checking, and Abstract Interpretation (VMCAI 2011), International Symposium on Software

Testing and Analysis (ISSTA 2011), International Conference on Software Engineering (ICSE 2010), International Conference on Automated Software Engineering (ASE 2010).

**Consulting Activities** Consulting for 84.51° (a large data-science company) 2019 – present

**Awards**

<b>SIGPLAN Research Highlight for PLDI 2020 paper</b>	2021
<b>Facebook Programming Languages and Probability Award</b> (2nd award for same call)	2020
<b>Facebook Programming Languages and Probability Award</b>	2020
<b>Facebook Programming Languages and Probability Award</b>	2019
<b>UIST Best Paper Award</b>	2018
<b>FAST Best Paper Award</b>	2018
<b>FSE Best Paper Award</b>	2017
<b>NSF CAREER Award</b>	2017
<b>Google Faculty Research Award</b>	2016
<b>Winner of 4 Gold Medals and 1 Bronze Medal</b>	2013
<i>International Competition on Software Verification (SV-COMP)</i>	
My automated verification tool, UFO, won the first place in 4 (out of 10) verification categories (tracks), the largest number of gold medals amongst the eleven participating tools. Categories won: (1) Linux Device Drivers, (2) Control Flow and Integers, (3) Product Lines, and (4) SystemC.	
<b>Alexander Graham Bell Canada Graduate Scholarship</b>	Sept 2010 – Aug 2013
<b>Ontario Graduate Scholarship (OGS)</b>	Sept 2008 – Aug 2010
<b>The Dr. Harry Lyman Hooker Scholarship</b>	Sept 2007 – Apr 2008
<b>NSERC Undergraduate Student Research Award</b>	May 2007 – Aug 2007
<b>The Motorola Software Engineering Scholarship</b>	Sept 2006 – Apr 2007
<b>Nortel Networks Scholarship in Information Technology</b>	Sept 2005 – Apr 2006

**Media** Computer scientists aim for software fairness and transparency  
Wisconsin State Journal, May 3, 2020.  
*By Loris D'Antoni and Aws Albarghouthi*

Moonshot Insights Bets on Algorithms to Address Biases in Hiring  
Xconomy, July 18, 2018

In 2017, society started taking AI bias seriously  
Engadget, December 21, 2017

Algorithms learn from us, and we can be better teachers  
NBC News, March 13, 2017

UW software aims to find and fix biased computer programs  
Wisconsin State Journal, July 10, 2017

Fairness-verification tool helps avoid illegal bias in algorithms  
TechRepublic, July 11, 2017

Software catches unintentional bias in other programs  
Daily Texan, November 22, 2016