CV / Nadeem Abdul Hamid

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office
Berry College
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professional affiliations
1997-present: ACM
(SIGPLAN; SIGCSE)

2006-2020: CCSC
(Southeast region)

2004-2006: IEEE
Computer Society

1988-1999: SIAM
(student member)

experience

2019–   **Chair, Department of Mathematics and Computer Science**   *Berry College*

- Development of new Computer Science and Data Science majors; coordinated with development of Data Analytics major
- Coordination of departmental external review of Computer Science, Mathematics, and Mathematics Education programs
- Development of departmental Guidelines for Promotion and Tenure
- Development of Institutional Effectiveness program goals and learning outcomes and assessment for Computer Science
- Multiple tenure-track and visiting position hires in Computer Science and Mathematics
- Program approval for GaPSC Computer Science P-12 certification

2010–   **Associate Professor, Computer Science**   *Berry College*

- Designed and implemented a comprehensive revision of the Computer Science program, including a major concentration, a minor in Computer Science, and an interdisciplinary minor in Web Development
- Development of the Physical Computing lab
- Development of the Creative Technologies major
- Chaired multiple Computer Science and Mathematics faculty searches
- Developed a successful proposal for General Education credit for CSC120
- Member of P&T third-year review committee for two junior faculty members
- Student programming team sponsor to CCSC:SE contests

2004–2010   **Assistant Professor, Computer Science**   *Berry College*

- Maintenance of Computer Science server, classroom and lab workstations
- Computer Science external review; Program Analysis report
- Invited for external review of Georgia Highlands College CS program

2001–2003   **Teaching Fellow**   *Yale University*

Introduction to Programming/Java; Introduction to Systems Programming and Computer Organization; Operating Systems; Formal Semantics

1994–1999   **Independent Consultant**

- Y2K legacy code/Biomedical data analysis (Spacelabs Medical, Hamden, CT)
- Game development (Heliotrope Studios, Guilford, CT)
- Retail software development/technical documentation and support (Northeast Systems Group, East Haven, CT)
  - 1996 Copyright: "Floral Wedding System" (order entry application)
- Graphic/layout editor, Hamden Visions magazine (Hamden, CT); awarded "Best New England School Newspaper")
- Private tutoring (Computer Science/C++/Java)

1996–1997   **Math/Science tutor**   *University of New Haven*

Center for Learning Resources

education

2005	**Ph.D., M.Phil.** Computer Science	Yale University
	Thesis: A Syntactic Approach to Foundational Proof-Carrying Code	
	Advisor: Zhong Shao	
2001	**M.S.** Computer Science	Yale University
1999	**B.S.** Computer Science, summa cum laude	University of New Haven
	Mathematics minor	
	Honor's thesis: The Traveling Salesman Problem: An Evaluation of Algorithms for Obtaining Solutions	

publications

papers (peer-reviewed)

Velasquez, Bernny, Jessica Herring, and Nadeem Abdul Hamid. "Formally Verified Implementation of the K-Nearest Neighbors Classification Algorithm". In: Formal Methods: Foundations and Applications. Ed. by Sidney C. Nogueira and Ciprian Teodorov. Cham: Springer Nature Switzerland, 2025, pp. 139–152. ISBN: 978-3-031-78116-2.

Hamid, Nadeem Abdul. "(Nearest) Neighbors You Can Rely On: Formally Verified k-d Tree Construction and Search in Coq". In: Proceedings of the 39th ACM/SIGAPP Symposium on Applied Computing. SAC '24. Avila, Spain: Association for Computing Machinery, 2024, pp. 1684–1693. ISBN: 9798400702433.

Mowry, Christopher B., Adel Lee, Zachary P. Taylor, Nadeem Hamid, Shannon Whitney, Michael Heneghen, James Russell, and Lawrence A. Wilson. "Using community science data to investigate urban Coyotes (Canis latrans) in Atlanta, Georgia, USA". In: Human Dimensions of Wildlife 26.2 (2021), pp. 163–178.

Hamid, Nadeem Abdul. "Lightweight Automated Structure Inference and Binding of Data Sources to Predefined Data Types". In: Proceedings of the 2020 ACM Southeast Conference. ACM SE '20. Tampa, FL, USA: Association for Computing Machinery, 2020, pp. 71–78. ISBN: 9781450371056.

Carter, Steven Andrew and Nadeem Abdul Hamid. "Automated Inference of Fixed-Width Data Formats". In: J. Comput. Sci. Coll. 34.2 (2018), pp. 199–207.

Hamid, Nadeem Abdul. "A Functional Flipped CS1". In: J. Comput. Sci. Coll. 32.2 (2016), pp. 120–126.

Hamid, Nadeem Abdul. "A Generic Framework for Engaging Online Data Sources in Introductory Programming Courses". In: Proceedings of the 2016 ACM Conference on Innovation and Technology in Computer Science Education. ITiCSE '16. Arequipa, Peru: Association for Computing Machinery, 2016, pp. 136–141.

Cochran, Zane R. and Nadeem Abdul Hamid. "Convex Hull Game: A Tangible Context for Algorithms and Computer Graphics Concepts". In: J. Comput. Sci. Coll. 28.2 (2012), pp. 124–131.

Hamid, Nadeem Abdul. "Automated Web-Based User Interfaces for Novice Programmers". In: Proceedings of the 50th Annual Southeast Regional Conference. ACM-SE '12. Tuscaloosa, Alabama: Association for Computing Machinery, 2012, pp. 42–47.

Hamid, Nadeem Abdul and Caleb Castleberry. "Formally Certified Stable Marriages". In: Proceedings of the 48th Annual Southeast Regional Conference. ACM SE '10. Oxford, Mississippi: Association for Computing Machinery, 2010.

Hamid, Nadeem Abdul. "Pattern Matching on Objects in Java". In: J. Comput. Sci. Coll. 25.1 (2009), pp. 51−57.

Hamid, Nadeem Abdul. "A Lightweight Framework for Peer-to-Peer Programming". In: J. Comput. Sci. Coll. 22.5 (2007), pp. 98−104.

Hamid, Nadeem Abdul. "Integrating a Certified Memory Management Runtime with Proof-Carrying Code". In: Proceedings of the 2007 ACM Symposium on Applied Computing. SAC '07. Seoul, Korea: Association for Computing Machinery, 2007, pp. 1526−1533.

Hamid, Nadeem Abdul and Zhong Shao. "Interfacing Hoare Logic and Type Systems for Foundational Proof-Carrying Code". In: Theorem Proving in Higher Order Logics. Ed. by Konrad Slind, Annette Bunker, and Ganesh Gopalakrishnan. Berlin, Heidelberg: Springer Berlin Heidelberg, 2004, pp. 118−135.

Hamid, Nadeem Abdul, Zhong Shao, Valery Trifonov, Stefan Monnier, and Zhaozhong Ni. "A Syntactic Approach to Foundational Proof-Carrying Code". In: J. Autom. Reason. 31.3−4 (2004), pp. 191−229.

Yu, Dachuan, Nadeem Abdul Hamid, and Zhong Shao. "Building Certified Libraries for PCC: Dynamic Storage Allocation". In: Sci. Comput. Program. 50.1−3 (2004), pp. 101−127.

Hamid, Nadeem Abdul, Zhong Shao, Valery Trifonov, Stefan Monnier, and Zhaozhong Ni. "A Syntactic Approach to Foundational Proof-Carrying Code". In: Proceedings of the 17th Annual IEEE Symposium on Logic in Computer Science. LICS '02. USA: IEEE Computer Society, 2002, pp. 89−100.

abstracts (peer-reviewed)

Bart, Austin Cory, Kalpathi Subramanian, Ruth E. Anderson, and Nadeem Abdul Hamid. "Preparing, Visualizing, and Using Real-World Data in Introductory Courses". In: Proceedings of the 49th ACM Technical Symposium on Computer Science Education. SIGCSE '18. Baltimore, Maryland, USA: Association for Computing Machinery, 2018, pp. 676−677.

Hamid, Nadeem Abdul. "Real Live Data for CS Courses". In: J. Comput. Sci. Coll. 33.6 (2018), pp. 165−167.

Hamid, Nadeem Abdul. "Teaching CS Courses with Real Live Data". In: J. Comput. Sci. Coll. 33.2 (2017), pp. 213−214.

Hamid, Nadeem Abdul and Steven Benzel. "Towards Engaging Big Data for CS1/2". In: Proceedings of the 45th ACM Technical Symposium on Computer Science Education. SIGCSE '14. Atlanta, Georgia, USA: Association for Computing Machinery, 2014, p. 710.

Hamid, Nadeem Abdul and Brook Bowers. "Formal Verification of Change Making Algorithms". In: Proceedings of the 51st ACM Southeast Regional Conference. ACMSE '13. Savannah, Georgia: Association for Computing Machinery, 2013.

Hamid, Nadeem Abdul. "Certified Code Development for a Microcontroller Architecture". In: Proceedings of the 46th Annual ACM Southeast Regional Conference. ACM-SE 46. Auburn, Alabama: Association for Computing Machinery, 2008, pp. 310−313.

Hamid, Nadeem Abdul. "Theorem Proving with the COQ Proof Assistant: Tutorial Presentation". In: J. Comput. Sci. Coll. 24.2 (2008), p. 230.

Hamid, Nadeem Abdul. "Certified Memory Management for Proof-Carrying Code: A Region-Based Type System and Runtime Library". In: Proceedings of the 43rd Annual South-

east Regional Conference - Volume 2. ACM-SE 43. Kennesaw, Georgia: Association for Computing Machinery, 2005, pp. 248–249.

presentations

Formally Verified Implementation of the K-Nearest Neighbors Classification Algorithm. Paper presented at the 27th Brazilian Symposium on Formal Methods (SBMF 2024). Vitória, Brazil, Dec. 2024.

(Nearest) Neighbors You Can Rely On: Formally Verified K-D Tree Construction and Search in Coq. Paper presented at the 2024 Symposium on Applied Computing, Software Verification and Testing Track. Avila, Spain, Apr. 2024.

Lightweight Automated Structure Inference and Binding of Data Sources to Predefined Data Types. Paper presented at the 2020 ACM Southeast Conference. (online), 2020.

Automated Inference of Fixed-width Data Formats. Paper presented at 32nd Annual Consortium for Computing Sciences in Colleges: Southeastern Conference, CCSC-SE 2018. Salem, VA, Nov. 2018.

Preparing, Visualizing, and Using Real-world Data in Introductory Courses. Panel discussion at 49th ACM Technical Symposium on Computer Science Education, SIGCSE '18. Baltimore, MD, Feb. 2018.

Real live data for CS courses. Workshop at 23rd annual Consortium For Computing Sciences in Colleges: Northeastern Conference, CCSC-NE 2018. Manchester, NH, Apr. 2018.

Sinbad: Sailing the Waves of Data. 8th RacketCon Workshop. St. Louis, MO, Sept. 2018.

Teaching CS courses with real live data. Tutorial presented at 31st Annual Consortium for Computing Sciences in Colleges: Southeastern Conference, CCSC-SE 2017. Greenville, SC, Nov. 2017.

A Functional Flipped CS1. Paper presented at 30th Annual Consortium for Computing Sciences in Colleges: Southeastern Conference, CCSC-SE 2016. Asheville, NC, Nov. 2016.

A Generic Framework for Engaging Online Data Sources in Introductory Programming Cour-ses. Paper presented at 21th Annual Conference on Innovation and Technology in Computer Science Education, ITiCSE'16. Arequipa, Peru, July 2016.

A Generic Framework for Engaging Online Data Sources in Introductory Programming Cour-ses. Presented at the SPLASH-E 2015 Workshop. Pittsburgh, PA, Oct. 2015.

Towards Engaging Big Data for CS1/2. Poster presentation with Steven Benzel at 45th ACM Technical Symposium on Computer Science Education, SIGCSE'14. Atlanta, GA, Mar. 2014.

(with Brook Bowers). Formal Verification of Change Making Algorithms. Poster presentation at 51st Annual ACM Southeast Regional Conference. Savannah, GA, Apr. 2013.

Automated web-based user interfaces for novice programmers. Paper presented at 50th Annual ACM Southeast Regional Conference. Tuscaloosa, AL, Mar. 2012.

Web UI Teachpack. RacketCon workshop, Northeastern University. Boston, MA, July 2011.

Formally Certified Stable Marriages. Paper presented at 48th Annual ACM Southeast Regional Conference. Oxford, MS, Apr. 2010.

Pattern matching on objects in Java. Paper presented at 16th Annual Consortium for Computing Sciences in Colleges Midwestern Conference, CCSC-MW 2009. Chicago, IL, Oct. 2009.

Certified Code Development for a Microcontroller Architecture. Extended abstract presented at 46th Annual ACM Southeast Regional Conference. Auburn, AL, Mar. 2008.

Temporal Reasoning for Machine Code. Short paper presented at 15th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning, LPAR 2008. Doha, Qatar, Nov. 2008.

Theorem proving with the COQ proof assistant. Tutorial presentation at 22nd Annual Consortium for Computing Sciences in Colleges Southeastern Conference, CCSC-SE 2008. Augusta, GA, Dec. 2008.

A lightweight framework for peer-to-peer programming. Paper presented at Fifth Annual Mid-South Consortium for Computing Sciences in Colleges, CCSC-MS 2007. Monroe, LA, Mar. 2007.

Integrating a Certified Memory Management Runtime with Proof-Carrying Code. Paper presented at 2007 ACM Symposium on Applied Computing. Seoul, Korea, Mar. 2007.

Mechanized reasoning for binding constructs in typed assembly language using Coq. 1st Informal ACM SIGPLAN Workshop on Mechanizing Metatheory. Portland, OR, Sept. 2006.

Certified memory management for proof-carrying code: a region-based type system and runtime library. Poster presentation at 43rd Annual ACM Southeast Regional Conference. Kennesaw, GA, Mar. 2005.

A Syntactic Approach to Foundational Proof-Carrying Code. Paper presented at 17th Annual IEEE Symposium on Logic in Computer Science. Copenhagen, Denmark, July 2002.

A syntactic approach to foundational proof-carrying code. IBM Programming Languages Day. Hawthorne, NY, May 2002.

professional activities

- (2013–2020) "Nifty Assignments" co-chair, Consortium for Computing Sciences in Colleges Southeastern Conference
- (2008, 2010) Session Chair, ACM Southeast Conference
- External reviewer (conference submissions)
  - ACMSE (2024)
  - SIGCSE (2007-2024)
  - CCSC (2006-2023)
  - CompEd (2019)
  - ITiCSE (2007, 2008, 2022-2023)
  - CADE-20 (2005)
  - POPL (2005)
- Journal reviewer
  - LNCS Transactions on Computational Science (2010)
  - IEEE Transactions on Systems, Man, and Cybernetics (2009)
  - APPSEM'04 Theoretical Computer Science, Special Issue (2004)

professional development

2023	**Illinois Computer Science Summer Teaching Workshop** (online)	June 2023
2023	**``Teaching AI: Artificial Intelligence and Academic Integrity'' workshop** Berry College	January 2023
2022	**``Useful and actionable feedback from employers to help adapt computing curricula'' virtual workshop** DEAPening Employer Academic Partnerships, NSF	May 2022
2021	**``Updating Your Mathematics Curriculum'' workshop** Transforming Post-Secondary Education in Mathematics (TPSE), `http://tpsemath.org`	March 2021
2021	**Faculty book discussion: Up for Debate** Berry College, Department of Mathematics & Computer Science	
2020	**Mastery Grading Conference** `https://www.masterygrading.com`	June 2020
2018	**Faculty book discussion: Teaching Naked** Berry College	
2017	**Racket School of Semantics and Languages** University of Utah, Salt Lake City, Utah	July 10-14
2009	**``TeachScheme!-ReachJava'' summer workshop (advanced Java track)** Northeastern University, Boston, Massachusetts	July 20-24
2008	**``TeachScheme!-ReachJava'' summer workshop (introductory Scheme track)** Northeastern University, Boston, Massachusetts	July 7-11
2008	**Faculty book discussion: Our Underachieving Colleges** Berry College	
2007	**``How to Run a [Computing] Summer Camp – Logistics'' workshop** Georgia Tech, Atlanta, Georgia	Dec. 14
2007	**``Asian Studies Infusion'' workshop** Berry College, Mount Berry, Georgia	May 7-8
2006	**``Python First: A Lab-Based Introduction to Computer Science'' workshop** Chapman University, Orange, California	June 19-22
2005	**Faculty book discussion: What the Best College Teachers Do** Berry College	
2004	**ORNL Research Alliance in Math and Science workshop** Oak Ridge, Tennessee	Dec.
2002	**TYPES Summer School '02** Giens, France	Sep. 2 – 13

grants (internal)

2023	**Convertible Laptop to Support Computer Science Course Materials Preparation & Presentation**	$1000
	Berry College, Innovative Teaching Grant (ITG)	
2004–2024	**School of Mathematics and Natural Sciences travel grants**	(multiple)
	Berry College	
2012–2013	**LED Platforms for Tangible Interaction**	$600
	School of Mathematical and Natural Sciences Development of Undergraduate Research grant	
2013	**A Problem-Based Learning Approach to the Theory of Computation**	$1,000
	Berry College Summer Course Development Grant	
2008	**Motivating Computer Science Education with Personal Robots**	$1,000
	Berry College Faculty Development Grant	
2008	**Certifying Delay Routines for PIC Microprocessors**	$800
	School of Mathematics and Natural Sciences Development of Undergraduate Research grant	
2007	**Motivating Introductory Computer Science with Personal Robots**	$2,000
	Berry College Faculty Development Grant	
2006	**Summer workshop, "Python First: A Lab-Based Digital Introduction to Computer Science"**	$1,150
	Berry College Faculty Development Grant to attend	
2006	**Net-centric Computing course**	$1,000
	Berry College Summer Course Development Grant	

service activities (Berry College)

- Academic Council (2008, 2019-21, 2022-24)
- Berry Computing Club faculty advisor (2007)
- Budget Advisory Committee (2013-2015)
- Campbell School of Business Graduate Assessment and Policy Committee (2015-16)
- CIC Degree Qualifications Profile committee
- Council on Student Scholarship (2009–2011)
- Faculty Development Committee (2022-24)
- General Education Assessment Committee (2014-2016)
- Hertz Scholarship faculty sponsor (2008–present)
- Information Technology committee (2005-2007), chair (2011-2013), (2015-2017)
- Institutional Effectiveness Committee (2016-2022)
- Interdisciplinary Studies committee (2009–2016)
- Libraries committee (2008–2010)
- Multicultural and International Student Programs Committee (2014-2016)
- National and International Scholarships and Fellowships committee (2010–present)
- MNS Course Scheduling committee (chair) (2007)
- MNS Development of Undergraduate Research (DUR) Grant committee (2013-2018)
- MNS Promotion and Tenure committee (chair) (2014-2017)
- STEMTeach departmental liaison, Computer Science (2022-)
- Symposium on Student Scholarship presentation judge, moderator
- Traffic violations committee (2007–2013), chair (2011-2013)
- Multiple departmental and school faculty and dean search committees
- Multiple faculty third year review committees
- Multiple programs sponsored by the Interfaith Council and Department of Religion and Philosophy, including:
    - "Seeking Calmness in Tumultuous Times: An Interfaith Panel" (2021)
    - "The Human Predicament as Understood by Various Religious Traditions" (2017)
    - "Teaching Tolerance: Breaking the Stereotypes of Islamophobia" (2017)
    - "Islam: Local Perspectives on a Global Community" (2016)
    - "The New Americans: Palestinian Bride" (2013)
    - "A Conversation on the Binding of Abraham's Son" (2012)
    - Book discussion panelist: Stephen Prothero, God is not One (2011)
    - "Hajj: The Abrahamic Tradition" (2007)
    - "Ramadan (month of fasting)" (2006)
    - Worship Opportunities Fair
- Guest lectures for courses in Business, Communications, Mathematics, and Religion

courses taught (Berry College)

(Fall 2004 – Spring 2025)

	Course	Times taught
CSC 101	Introduction to Computing	1
CSC 103	Creative Computing	4
CSC 120	Designing Programs: Problem-Solving & Abstraction	23
CSC 121	Object-Oriented Program Design	2
CSC 121	Principles of Computer Science II	7
CSC/MAT 219	Discrete Structures	2
CSC 220	Data Structures and Systems Programming	6
CSC 225	Data Structures and Algorithms	7
CSC 232	Competitive Programming	3
CSC 235	Physical Computing: Introduction to Embedded Systems	5
CSC 245	Web Technologies and Programming	6
CSC 300	Professional and Social Contexts	5
CSC 315	Theoretical Topics in Computer Science (incl. Interactive Theorem Proving; Languages, Automata, & Computation)	4
CSC 320	Algorithm Design & Analysis/Models of Computation	10
CSC 340	Operating Systems	1
CSC 345	Elements of Computing Systems	6
CSC 350	Computer Organization and Architecture	2
CSC 362	Database Systems	1
CSC 404	Organization of Programming Languages	1
CSC 420	Advanced Topics (incl. Artificial Intelligence; Machine Learning; Mobile App Development)	7
CSC 450	Net-centric Computing	1
CSC 490	Senior Project	3
CSC 494	Undergraduate Research in Computer Science	*
CSC 498	Directed Study	11
CSC/MAT 496	Academic Internship	2
BUS 657	Strategic Use of Information Technology	2
HON 450/451	Honors Thesis	2