

Matthew C. Jadud

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Education

Doctor of Philosophy, Computer Science, Univeristy of Kent, UK. October 2006.

Master of Science, Computer Science, Indiana University, Bloomington. September 2002.

Bachelor of Arts, Physics, Kenyon College, Gambier, Ohio. May 1998.

Teaching Experience

Assistant Professor of Computer Science

Allegheny College
Meadville, PA
August 2008 – Present

Jan 2010 – May 2010 Taught *CMPSC 220: Programming Languages* and *FS102: Technology and Activism*. Introduced majors and non-majors to tangible computing with newly authored text. Mentored students on qualitative research in the computing classroom as well as 3D printing support for blind students.

Sept 2009 – Dec 2009 Taught *CMPSC 112: Data Structures* and *FS101: British Comedy in Translation*. Mentored four students in research ranging from non-linear storytelling in games to 3D printing support for blind students of computing.

Jan 2009 – May 2009 Led *CMPSC 580: Junior Research Seminar* and *CMPSC 220: Programming Languages*. Collaborated with students on *CMPSC 600: 3D Printing*, an independent study to build and test an open-source 3D printer.

Sept 2008 – Dec 2008 Taught *CMPSC 111: Introduction to Computing I*, and designed and led *CMPSC 190: Virtual Worlds and Real Robots*, a novel introduction to computing for non-majors.

Visiting Professor of Computer Science

Olin College
Needham, MA
Sept 2007 – July 2008

Sept 2007 – May 2008 Faculty supervisor for five-student team as part of Olin's SCOPE program, a final-year capstone project. This intense, 1-year experience places students in close collaboration with an industry partner in the context of a real-world, multi-disciplinary engineering task.

Jan 2008 - May 2008 Co-taught *ENGR 3390: Robotics*, a hands-on, project-based exploration of robotic control. Taught *ENGR 3220: Human Factors and Interface Design*, a studio-based course regarding interface design.

Sept 2007 – Dec 2007 Taught *ENGR 2510: Software Design*, a first course for engineering and business students.

Teaching Staff

University of Kent
Canterbury, Kent
Sep 2002 – Dec 2006

Sep 2003 – Dec 2006 Instigated and taught *Cool Stuff in Computer Science*, a departmental initiative to challenge computer science and electronics undergraduates.

Jan 2003 – Dec 2003 Taught courses titled *A Java Programming Primer* and *Further Java Programming* for continuing and non-traditional students.

Sep 2002 – May 2003 Delivered practical laboratory sessions for first-year students as part of their *Information Systems* module.

Associate Instructor

Indiana University
Bloomington, Indiana
Sep 1998 – May 2002

Jan 2000 – May 2002 Designed and led *Introduction to LEGO Robotics*, a second-year lab-based course for non-majors offered through the Department of Computer Science.

Sep 1998 – Jan 2000 Delivered material for first-year students in *Introduction to Computing*, a non-majors service course offered by the Department of Computer Science.

Work Experience

Research Associate

University of Kent
Canterbury, England

September 2005 – May 2007 Postdoctoral researcher on the EPSRC-funded project *DIAS*. In this five-institution collaboration, responsible for research regarding concurrent runtimes for wireless sensor networks and their use in environmental science applications.

Systems Programmer/Analyst

Indiana University
Bloomington, Indiana

Jan 2001 – Jan 2002 As part of a small team, collaborated on the specification and development of a data model appropriate for representing music in all its forms.

Student Mentoring

Stephanie Cost '11, Sara Doan '11 — Operation: Stick Figure Army

CREU Funded Project, September 2009 - August 2010

<http://www.baseplate.org/blogs/osfa/>

William Plaut '10 — E-Pendants

Senior Comprehensive Project, September 2009 - May 2010

Maja H. Sweeny '09 — RepStrap: A 3D Printer at Allegheny

January 2009 - July 2009

http://www.baseplate.org/projects/repstrap_at_allegheny.html

Jonathan Simpson '06 — A Native Transterpreter for the LEGO Mindstorms

September 2005 – May 2006

Journal Publications

- [1] Michael C. Hughes, Matthew C. Jadud, and Ma. Mercedes T. Rodrigo. String formatting considered harmful for novice programmers. *Computer Science Education*, 20(3), September 2010.
- [2] Ma Mercedes T. Rodrigo, Emily Tabanao, Ma. Beatriz E. Lahoz, and Matthew C. Jadud. Analyzing online protocols to characterize novice java programmers. *Philippine Journal of Science*, 138(2), December 2009.
- [3] M. C. Jadud. A first look at novice compilation behaviour using BlueJ (reprinted with commentary). *Annals of Research in Education*, 2(2), July 2006.
- [4] Kate Sanders, Sally Fincher, Dennis Bouvier, Matthew Jadud, Gary Lewandowski, Briana Morrison, Laurie Murphy, Marian Petre, Brad Richards, Josh Tenenberg, Lynda Thomas, Richard Anderson, Ruth Anderson, Sue Fitzgerald, Alicia Gutschow, Susan Haller, Raymond Lister, Renee McCauley, John McTaggart, Christine Prasad, Terry Scott, Dermot Shinnars-Kennedy, Suzanne Westbrook, and Carol Zander. A multi-institutional, multi-national study of programming concepts using card sort data. *Expert Systems*, 22(3):121–128, July 2005.
- [5] Matthew C. Jadud. A first look at novice compilation behaviour using BlueJ. *Computer Science Education*, 15(1):25 – 40, March 2005.

Refereed Publications

- [1] Matthew C. Jadud and Poul Henriksen. Flexible, reusable tools for studying novice programmers. In *ICER '09: Proceedings of the fifth international workshop on Computing education research workshop*, pages 37–42, New York, NY, USA, 2009. ACM.
- [2] Ma. Mercedes T. Rodrigo, Ryan S. Baker, Matthew C. Jadud, Anna Christine M. Amarra, Thomas Dy, Maria Beatriz V. Espejo-Lahoz, Sheryl Ann L. Lim, Sheila A.M.S. Pascua, Jessica O. Sugay, and Emily S. Tabanao. Affective and behavioral predictors of novice programmer achievement. In *ITiCSE '09: Proceedings of the 14th annual ACM SIGCSE conference on Innovation and technology in computer science education*, pages 156–160, New York, NY, USA, 2009. ACM.
- [3] Matthew C. Jadud, Christian L. Jacobsen, Jon Simpson, and Carl G. Ritson. Safe parallelism for behavioral control. In *2008 IEEE Conference on Technologies for Practical Robot Applications*, pages 137–142. IEEE, November 2008.
- [4] Emily Tabanao, Ma Mercedes T. Rodrigo, and Matthew C. Jadud. Identifying at-risk novice programmers through the analysis of online protocols. In *Philippine Computing Society Congress 2008*. UP Diliman, 2008.
- [5] Matthew C. Jadud, Christian L. Jacobsen, and Jonathan Simpson. Patterns for programming in parallel, pedagogically. In *SIGCSE '08: Proceedings of the 39th SIGCSE technical symposium on computer science education*, pages 231–235, New York, February 2008. ACM Press.
- [6] Jonathan Simpson, Christian L. Jacobsen, and Matthew C. Jadud. A Native Transterpreter for the LEGO Mindstorms RCX. In Alistair A. McEwan, Wilson Ifill, and Peter H. Welch, editors, *Communicating Process Architectures 2007*, volume 65 of *Concurrent Systems Engineering*, pages 339–348, Amsterdam, July 2007. IOS Press.
- [7] Christian L. Jacobsen and Matthew C. Jadud. Concurrency, robotics and robodeb. Technical Report SS-07-09, 2007 AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education, AAAI Press, Menlo Park, California, March 2007.
- [8] Matthew C. Jadud. Methods and tools for exploring novice compilation behaviour. In *ICER '06: Proceedings of the second international workshop on Computing education research*, pages 73–84, New York, NY, USA, 2006. ACM.
- [9] Jonathan Simpson, Christian L. Jacobsen, and Matthew C. Jadud. Mobile Robot Control - The Subsumption Architecture and occam-pi. In P. Welch, J. Kerridge, and F. Barnes, editors, *Communicating Process Architectures 2006*, volume 64 of *Concurrent Systems Engineering*, pages 225–236, Amsterdam, September 2006. IOS Press.

- [10] Christian L. Jacobsen, Damian J. Dimmich, and Matthew C. Jadud. Native Code Generation Using the Transterpreter. In P. Welch, J. Kerridge, and F. Barnes, editors, *Communicating Process Architectures 2006*, volume 64 of *Concurrent Systems Engineering*, pages 269–280, Amsterdam, September 2006. IOS Press.
- [11] Damian J. Dimmich, Christian L. Jacobsen, and Matthew C. Jadud. A Cell Transterpreter. In Peter Welch, Jon Kerridge, and Fred Barnes, editors, *Communicating Process Architectures 2006*, volume 29 of *Concurrent Systems Engineering Series*, pages 215–224, Amsterdam, September 2006. IOS Press.
- [12] Matthew C. Jadud, Christian L. Jacobsen, and Damian J. Dimmich. Concurrency on and off the sensor network node. *SEUC 2006 workshop*, June 2006.
- [13] Christian L. Jacobsen and Matthew C. Jadud. Towards concrete concurrency: occampi on the lego mindstorms. In *SIGCSE '05: Proceedings of the 36th SIGCSE technical symposium on Computer science education*, pages 431–435, New York, February 2005. ACM Press.
- [14] Christian L. Jacobsen and Matthew C. Jadud. The Transterpreter: A Transputer Interpreter. In Ian R. East, David Duce, Mark Green, Jeremy M. R. Martin, and Peter H. Welch, editors, *Communicating Process Architectures 2004*, volume 62 of *Concurrent Systems Engineering Series*, pages 99–106, Amsterdam, September 2004. IOS Press.
- [15] Matthew C. Jadud, Brooke N. Chenoweth, and Jacob Schleter†. Little languages for little robots. In *Proceedings of the Psychology of Programming Interest Group 2003*, pages 554–560, 2003.
- [16] Matthew C. Jadud. Teamstorms as a Theory of instruction. In *Systems, Man, and Cybernetics*. IEEE, 2000.
- [17] Matthew B. Riddle*, Jeffrey T. Lawson*, and Matthew C. Jadud. Webworms: Modeling emerging behaviors using LEGO robotics. In *Systems, Man, and Cybernetics*. IEEE, 2000.

* Undergraduate research collaborator.

† High school research collaborator.

Books

Matthew C. Jadud, Christian L. Jacobsen, Adam T. Sampson. *Plumbing for the Arduino*. <http://concurrency.cc/book/>. Creative Commons Attribution-Share Alike. 78 pages.

Sally Fincher and the Computing Education Research Group. *Studying Programming*. London, UK: Palgrave Macmillan, 2006. [224 pages. ISBN 1403946876]

Invited Talks and Colloquia

Plumbing for Computing and Art

Allegheny College Lecture Series, October 2009

Open Hardware for Teaching and Research

Allegheny College Summer Research Series, July 2009

Towards Designing Usable Languages

Invited talk, USENIX 2009, June 2009

<http://www.usenix.org/events/usenix09/tech/techspeakers.html#jadud>

Exploring the Behavior of Novice Programmers

Invited talk, Colloquium on Computer Science Pedagogy

School of Computer Science, CMU, February 2009

<http://www.intro.cs.cmu.edu/events/colloquium.html>

Designing Usable Languages

Research in Computer Science Seminar, Allegheny College, October 2008

http://www.cs.allegheny.edu/~gkapfham/research/RICSS/ricss_jadud_2008.pdf

Runtimes, Robots, and Clusters

Tech Talk, Google, April 2007

<http://video.google.com/videoplay?docid=9165571766697501863>

ALL YOUR ROBOTS ARE BELONG TO US

Invited lecture, Computer Science Dept, University of Copenhagen, March 2006

<http://www.diku.dk/mailman-archives/arrangementer/2006-March/000474.html>

Toys + Motivation = Cool Stuff in Computer Science

Invited talk, Higher Education Academy, UK, May 2005

<http://www.ics.heacademy.ac.uk/events/displayevent.php?id=53>

Old languages never die... they just get reimplemented

Departmental colloquium, Computer Science, IU Bloomington, February 2005

<http://www.cs.indiana.edu/Calendar/colloquia/judad+jacobsen.html>

Little Languages for Little Robots

Departmental colloquium, Physics, Kenyon College, January 2004

Funding

Development of Affect-Sensitive Interfaces

Collaborator, 2009 – Present, ~P3,000,000 (~\$65,000)

Department of Science and Technology (DOST) through the Philippine Council for Advanced Science and Technology Research and Development

Operation: Stick Figure Army

Co-Principal Investigator, 2009 – 2010 \$16,500

Stephanie E. Cost, Sara M. Doan, Matthew C. Jadud

Computing Research Association for Women, July 2009

Observation and Diagnosis of Novice Programmer Behaviors Using Online Protocols.

Collaborator, 2008 – 2009, P499,182 (~\$11,000)

Philippine Council for Advanced Science and Technology Research and Development

Modeling Novice Programmers' Behaviors Through Analysis of Online Protocols

Collaborator, 2007 – 2008, P497,748 (~\$11,000)

Philippine Council for Advanced Science and Technology Research and Development

An extensible firmware for supporting parallel-safe robotics

Principal Investigator, 2008 – Present, \$8,000

Matthew C. Jadud

Institute for Personal Robotics

Academic Awards and Honors

- **Best Student Paper**, University of Kent, Computing Laboratory, 2004.
Departmental award regarding the publication of *A first look at novice compilation behavior in BlueJ*.
- **Best Student Paper**, Communicating Process Architectures, 2004.
Awarded for the paper *The Transterpreter: A Transputer interpreter*.
- **Associate Instructor of the Year**, Indiana University, Department of Computer Science, 1999 & 2002. For the pursuit of excellence in teaching.

Open Source

OpenSource.com (2010 – Present)

Regular (bi-weekly) contributor to this collaborative weblog on issues surrounding open source software. ~2000 subscribers as of March 2009.

<http://www.opensource.com/>

The Cardboarduino

Designed this low-fidelity computer for construction by novices exploring computing in tangible ways.

<http://www.concurrency.cc/hardware/cardboarduino>

Plumbing (2009 – Present)

Co-lead and core developer for this software and book supporting novice programmers in developing parallel programs for the embedded devices.

<http://www.concurrency.cc/>

The Transterpreter (2003 – Present)

Co-lead and core developer for this virtual machine for parallel languages.

<http://www.transterpreter.org/>

Untyped LLC (2004 – Present)

Provide sys-admin support and software contributions to this collective of web developers working in PLT Scheme.

<http://www.untyped.com/>

Service

- **Journal and Conference Review**

- Computer Science Education (journal)
- ACM Transactions on Computing Education (journal)
- Simulation and Games (journal)
- ACM Innovation and Technology in Computer Science Education 2009 (conference)

- **Technology Task Force**

Provide 5-year vision for technology at Allegheny College, Oct 2009 – Dec 2010

- **Faculty Searches**

- Biology (Spring 2010)
- Modern Languages, French (Spring 2010)

Professional Affiliations

- Association for Computing Machinery member since 2000
- Association for Computing Machinery member of the Special Interest Group in Computer Science Education since 2000