

Annette Christa Feng, ABD/Ph.D.

U.S. Citizen

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Education

University of Illinois at Urbana-Champaign, Urbana, IL GPA: 4.0/4.0
ABD/Ph.D. in Computer Science, 2001
Thesis Topic: *High-Performance TCP over Next-Generation Internet* Advisor:
Professor Geneva Belford

University of Illinois at Urbana-Champaign, Urbana, IL GPA: 3.7/4.0
M.S. in Computer Science, 1994
Thesis Title: *vVHDL: A Visual Programming Language for Hardware Design*
Advisor: Professor Eric Golin

The Pennsylvania State University, University Park, PA GPA: 2.9/4.0
B.S. in Computer Science, 1988
B.S. in Mathematics, 1988

Research Interests

- Visual Programming
- Parallel and Distributed Computing
- Digital Education
- Software Engineering

Publications

Journal Manuscripts

Annette C. Feng, Mark K. Gardner, Wu-chun Feng, "Parallel Programming with Pictures is a Snap!," *Journal of Parallel and Distributed Computing*, January 2017.

Karla Atkins, Christopher L. Barrett, Richard Beckman, Keith R. Bisset, Jiangzhuo Chen, Stephen G. Eubank, Annette C. Feng, Xizhou Feng, Steve Harris, Bryan L. Lewis, Vullikanti S. Anil Kumar, Madhav V. Marathe, Achla Marathe, Henning Mortveit, Paula Stretz, "An Interaction Based Composable Architecture for Building Scalable Models of Large Social, Biological, Information and Technical Systems," *CT Watch Quarterly*, 4(1): 46-53, 2008.

Annette C. Feng, Apu C. Kapadia, Wu-chun Feng, and Geneva Belford, "Packet Spacing: An Enabling Mechanism for the Delivery of Multimedia Content," *Journal of Supercomputing*, Vol. 23, No. 1, August 2002.

Conference Manuscripts (Peer-Reviewed Journal-Length Manuscripts)

Annette C. Feng, Wu-chun Feng, "Programming with Pictures in a Snap!," *IEEE International Parallel and Distributed Processing Symposium*, May 2016.

Annette C. Feng, Eli Tilevich, Wu-chun Feng, "Block-Based Programming Abstractions for Explicit Parallel Computing," *IEEE Blocks and Beyond Workshop*, October 2015.

Christopher L. Barrett, Richard Beckman, Keith R. Bisset, Jiangzhuo Chen, Lisa Durbeck, Stephen G. Eubank, Annette C. Feng, Xizhou Feng, Steve Harris, Bryan L. Lewis, Achla Marathe, Madhav V. Marathe, Gabriel Mateescu, Henning S. Mortveit, Paula Stretz, Vullikanti S. Anil Kumar, "DIDACTIC: Making a Case of Efficient High- Performance Computing in Public Policy Informatics," *Virginia Bioinformatics Institute Third Annual Research Symposium*, September 2008.

Apu C. Kapadia, Annette C. Feng, Wu-chun Feng, "The Effects of Inter Packet Spacing on the Delivery of Multimedia Content," *IEEE International Conference on Distributed Computing Systems*, April 2001.

Robert J. Sandusky, Kevin. R. Powell, and Annette C. Feng, "Design for Collaboration in Networked Information Retrieval," *Collaboration Across Boundaries: Theories, Strategies and Technology*: B. M. Wildemuth, K. Liberman, and D. H. Sonnenwald (Editors), *Proceedings of the ASIS Mid-Year Meeting*, 1998..

Eric J. Golin, Annette C. Feng, Linus Huang, and Eric Hughes, "A Visual Design Environment," *IEEE/ACM International Conference on Computer-Aided Design*, November 1993.

Eric J. Golin and Annette C. Feng, “A Visual Hardware Description Language,” *IFIP Conference on Hardware Description Languages*, April 1993.

Conference Posters (Peer-Reviewed Two-Page Abstracts)

Nanlin Sun, Annette Feng, Ryan Patton, Yotam Gingold, Wallace Lages, “Programmable Virtual Reality Environments,” Poster presented at: *IEEE Virtual Reality*, March 2021.

Annette C. Feng, Wu-chun Feng, Eli Tilevich, “PPP: Parallel Programming with Pictures,” Poster presented at: *IEEE/ACM International Conference on High-Performance Computing, Networking, Storage and Analysis*, Nov. 2015.

Technical Reports

Christopher L. Barrett, Madhav V. Marathe, Stephen G. Eubank, Vullikanti S. Anil Kumar, Keith R. Bisset, Annette C. Feng, Maleq Khan, Henning S. Mortveit, Paula E. Stretz, “DTRA CNIMS NPS-1 Presentation,” Technical Report, NDSSL Technical Report Number: 12-025, 2012.

Christopher L. Barrett, Keith R. Bisset, Stephen G. Eubank, Annette C. Feng, Maleq Khan, Achla Marathe, Madhav V. Marathe, Henning S. Mortveit, Zhengzheng Pan, Paula E. Stretz, Samarth Swarup, “NatEpi: Simulation of epidemic using the national model,” Technical Report, NDSSL Technical Report Number: 11-039, 2011.

Christopher L. Barrett, Keith R. Bisset, Stephen G. Eubank, Annette C. Feng, Maleq Khan, Achla Marathe, Madhav V. Marathe, Henning S. Mortveit, Z Pan, Paula E. Stretz, Samarth Swarup, “Experiments with national model for DTRA Northcom Tabletop Study,” Technical Report, NDSSL Technical Report Number: 11-040, 2011.

Christopher L. Barrett, Richard J. Beckman, Keith R. Bisset, Jiangzhuo Chen, Stephen G. Eubank, Annette C. Feng, Maleq Khan, Bryan L. Lewis, Achla Marathe, Madhav V. Marathe, Henning S. Mortveit, Zhengzheng Pan, Paula E. Stretz, Samarth Swarup, Vullikanti S. Anil Kumar, “Modeling to Support A Table Top Exercise for USNORTHCOM,” Technical Report, NDSSL Technical Report Number: 11-141, 2011.

Theses

Annette C. Feng, *vVHDL: A Visual Programming Language for Hardware Design*, M.S. Thesis, University of Illinois at Urbana-Champaign, 1994.

Research Grants

Madhav V. Marathe, Keith R. Bisset, Vullikanti S. Anil Kumar, Henning S. Mortveit, Edward Fox, Annette C. Feng, “SDCI NWI New: Desktops to Clouds – A Middleware for Next Generation Network,” *National Science Foundation (NSF)*, 2010.

Professional Experience

1/2021 – 5/2021

Instructor, CS 1114: Introduction to Software Design, Virginia Tech, Blacksburg, VA

- Remote instruction of software design via Zoom, Canvas, and Piazza.
- Curriculum development and update.
- Total number of enrolled students: 160.

8/2017

Instructor, Let’s Code Blacksburg: Parallel Programming with Pictures, Virginia Tech, Blacksburg, VA

- Lead development of overall concept and curriculum design.
- Session lead for introducing the parallel computing constructs of *pSnap!*
- Total number of enrolled middle-school students and parents: 32.

7/2017

Instructor, Imagination Camp 2017: Intro to Parallel Programming in *pSnap!*, Virginia Tech, Blacksburg, VA

- Lead development of overall concept and curriculum design.
- Session lead for introducing the parallel computing constructs of *pSnap!*
- Advisor of undergraduate students to assist in curriculum development.
- Total number of enrolled high schoolers: 40.

2/2014 – 1/2017

Senior Research Scientist, Department of Computer Science, Virginia Tech, Blacksburg, VA

- Development of *pSnap!*, an extension to the *Snap!* visual programming environment (a variant of Scratch), which introduces both explicit parallel constructs and abstractions.
- Development of projects and curriculum to teach explicit parallel programming using *pSnap!*.

- Advising and mentoring of undergraduate and high-school students on projects geared specifically toward teaching STEM to K-12 students, particularly in areas focusing on computer program logic and parallel design constructs.

2/2013 – 5/2013

Volunteer Middle School Computer Programming Instructor, Blacksburg New School, Blacksburg, VA

- Development of middle school curriculum and laboratory exercises.
- Teaching of computer science concepts and problem-solving techniques using Scratch and Storytelling Alice.
- Total number of enrolled middle-school students: 14.

8/2007 – 6/2012

Senior Software Developer, Network Dynamics and Simulation Science Laboratory, Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA

- Design & development of web applications for data intensive problems.
- Design & development of distributed & multi-tier software.
- Design & development of schema for & applications using relational databases.
- Design & development of software on HPC platforms.
- Development & maintenance of integrated, distributed cyber-environments.
- Application of multi-threaded programming.

6/1999 – 6/2006

Technical Staff Member, Network Engineering Group, Los Alamos National Lab, Los Alamos, NM

- Research & development of high-performance transport protocols.
- Performance characterization and analysis of high-speed networks.

9/1998 – 6/1999

Graduate Research Assistant, Los Alamos National Lab, Network Engineering Group, Los Alamos, NM

- Network traffic characterization and high-performance transport protocols.

8/1997 – 9/1998

Research Assistant, University of Illinois at Urbana-Champaign, National Center for Supercomputing Applications (NCSA) and Community Architectures of Network Information Systems (CANIS), Urbana, IL

- Architecture & infrastructure of collaborative framework for the national Digital Library Initiative (DLI).
- Support for cooperative distributed problem-solving system.

6/1996 – 8/1996

Research Scientist, Hewlett-Packard Research Laboratories (HP Labs), Palo Alto, CA

- Design of an integrated framework for a distributed, composite, modeling environment.

5/1992 – 8/1997

Research Assistant, University of Illinois at Urbana-Champaign, Dept. of Computer Science, Urbana, IL

- Collaboration patterns.
- Collaboration environments (wOrlds).
- X.500-based object servers.
- Visual programming languages.

1/1992 – 5/1992

Teaching Assistant, University of Illinois at Urbana-Champaign, Dept. of Computer Science, Urbana, IL

- Classroom and laboratory instruction.
- Development and grading of lectures, homework, computer projects, quizzes, and exams.

6/1991 – 1/1992

Research Assistant, University of Illinois at Urbana-Champaign, Computing Services Organization, Urbana, IL

- Computer systems consultation.

9/1990 – 4/1992

System Administrator, University of Illinois at Urbana-Champaign, Dept. of Veterinary Pathobiology, Urbana, IL

- Scientific applications programming.
- Unix system administration.

5/1989– 7/1990

Computer Analyst, DuPont, Information Systems Division, Wilmington, DE

- Company-wide VAX/VMS systems analysis and support.

8/87– 11/88

Computer Operator, Penn State University, Dept. of Computer Science, University Park, PA

- Unix systems maintenance.

1/1988– 10/1988

Computer Consultant, Penn State University, Dept. of Computer Science, University Park, PA

- Unix systems maintenance.

6/1988– 8/1988

Application Programmer, Data Consultants, Beaver Falls, PA

Computer Skills

Programming Languages

- Compiled: C, C++, Fortran, Java, Pascal, VHDL.
- Interpreted: BASIC, HTML, JavaScript, Lisp, Perl, Python, Scheme, Smalltalk.
- Scripting: Unix shell scripting (csh, bash, tcsh).
- Visual: Alice, Blockly, Scratch, Snap!.

Operating Systems

- Microsoft Windows and most Unix-based variants: Linux, OS X, FreeBSD.

Databases

- Oracle, Postgres, MySQL.

Productivity Software

- Microsoft Office, JMP.

Activities

Coach/Mentor/Instructor, First Lego League Robotics Team, Blacksburg, VA, 2017-2019.

- Lead coach for 2017 Hydrodynamics Challenge (Best Robot Design at Regional competition).
- Lead coach for 2018 Into Orbit Challenge (2nd place at Regional competition; Advanced to State Championship).
- Lead coach for 2019 City Shaper Challenge (2nd place at Regional competition; Best Program Design at State Championship).

Member of the ASCENT Research Program at Los Alamos National Laboratory, 1999-2000.

Member of IEEE, 1997-2001.

Member of ACM, 1984-2001.

Member of the Velo del Norte Bicycle Racing Team, 1998-2000.

Member of the University of Illinois Bicycle Racing Team (Collegiate), 1995-1998.

Member of the Wild Thang Bicycle Racing Team (Amateur), 1995-1998.

Member of the Atomic Fish Ultimate Frisbee Team, 1999.

Member of the University of Illinois Women's Ultimate Frisbee Team, 1991-1995.

- Coach (1994-1995), Treasurer (1993-1994)

Advisor for DuPont Explorer Program, 1989-1990.

Member of Hand-in-Hand, a volunteer organization to benefit disabled persons, 1984-1988.

- Assistant Director (1987-1988), Guest committee member (1984-1987).

Member of the Society for Women Engineers (SWE), Penn State Chapter, 1984-1986.

Hobbies

Certified Fitness Instructor, The Weight Club, Blacksburg, VA, 2018-present

References

Available upon request.