Brian S. Borowski, Ph.D., CAGO

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Summary: Meticulous software engineer currently pursuing my passion to teach computer science at the college level. I have been developing software for academia, industry, and personal projects for over 15 years. Applying my diverse background, I consistently aim to present a blend of theoretical and practical instruction and teach students how to teach themselves.

Skills:
Programming Languages: Java, C++, C, Visual Basic, MATLAB, PHP, Python, Scheme, Bash, and SQL
Operating Systems: Microsoft Windows (all recent versions) and Fedora/Ubuntu Linux
Databases: MySQL and Berkeley DB
Web Technologies: HTML/XHTML, CSS, JavaScript, JSP, ASP, XML, XSLT, and XSL-FO
Design Technologies: UML, Rational Rose, and ER diagrams
Version Control: SVN/Subclipse, Rational ClearCase/ClearQuest, and MKS Source Integrity
Software: Eclipse, Microsoft Office, Dreamweaver, Corel Paint Shop Pro, WinRunner, Apache Tomcat, and Apache FOP
Hardware: Proficient at building, upgrading, and troubleshooting PCs based on Intel and AMD architectures

Certifications:
Joint NPM/AGO Organ Colleague Certification, July 2014
Colleague, American Guild of Organists, December 2013
State of NJ Standard Certificate – Teacher of Computer Science Technology, July 2012
Sun Certified Programmer for the Java 2 Platform, May 2002

Experience:

Stevens Institute of Technology, Hoboken, NJ
Associate Chair of Undergraduate Education   08/17 – Present
Associate Director of Undergraduate Programs   07/15 – 08/17
- Schedule all CS courses, graduate and undergraduate, with the registrar for fall, spring, and summer semesters
- Assign assistants (TAs, CAs, graders) to faculty for both undergraduate and graduate courses
- Collect and maintain database of all forms needed for ABET accreditation, including PCRs, SPADs, and ICEs, and write the annual report
- Deliver presentations at various undergraduate events throughout the academic year

Assistant Teaching Professor   08/14 – Present
- Teach Introduction to Computer Science (CS 115), Introduction to Web Programming and Project Development (CS 146), Creative Problem Solving and Team Programming (CS 370), and Algorithms (CS 385) to undergraduate students
- Serve on the curriculum committee and "Teaching Circle" to promote excellence in the classroom
- Advise undergraduate students on their courses of study

Bergen County Academies, Hackensack, NJ   09/11 – 07/14
Teacher of Computer Science Technology
- Taught AP Computer Science, data structures and algorithms, and courses in Python, Java, C, and Bash to advanced high school students
- Developed all new curricula, selected textbooks and supplementary materials, and created and graded labs, quizzes, and tests
- Implemented auto-grader shell scripts to help students determine the correctness of their lab assignments
- Taught number theory, algebra, and problem solving skills at the summer math camp program

Thomson Reuters, New York, NY   07/10 – 08/11
Technical Specialist
- Researched and implemented natural language processing algorithms that index and retrieve related news articles in C++
- Improved the GNU Make build process (reduced build time from 30 minutes to 3 minutes)
- Added a testing framework in PHP to objectively measure the performance gain associated with various startup parameters
- Instituted nightly load testing of the application server via Hudson and Siege
- Implemented several document clustering algorithms that offer varying ratios of speed versus accuracy

Stevens Institute of Technology, Hoboken, NJ
Research Assistant   08/05 – 06/10
- Extended OMNeT++ with an underwater channel model implemented in MATLAB and exported as a shared library

- Designed and implemented a configurable acoustic software modem in Java/C that integrates with the sockets interface for easy deployment of network applications
- Characterized the Hudson River estuary as a communications channel by generating the scattering function and all derived views
- Built PC104-based computers for use in an underwater sensor network
- Researched diver detection using passive sonar

Teaching Assistant   01/03 – 05/04; 08/07 – 12/07
- Created syllabus, chose required textbook and supplementary materials, and devised and graded assignments for a new course in concurrent programming in conjunction with my advisor (Fall 2007)
- Taught object-oriented software design and programming techniques (Spring 2003), introduction to computer science (Fall 2003), and data structures and algorithms (Spring 2004) under the guidance of the professor
- Led recitation sessions, held office hours, and devised and graded assignments

Cargo Manager Systems, Union, NJ
Web Developer Consultant   10/07 – 10/08
- Enhanced n-tier web applications (JSP/XHTML – Java beans – JDBC) that manage imports, exports, transportation, and warehousing for the supply chain industry
- Modified functionality of a web application that performs government filing of import shipments

Syncsort Incorporated, Woodcliff Lake, NJ
Associate Software Engineer   06/04 – 08/05
- Enhanced DMExpress, an application for sorting, aggregating, copying, joining, and merging extremely large quantities of data
- Utilized MFC to add new front-end features
- Developed back-end infrastructure in standard C++ to run DMExpress tasks in parallel
- Wrote and executed WinRunner scripts to ensure program stability
- Created Perl and Bash scripts to facilitate source code management procedures

KPMG LLP, Montvale, NJ
Programmer Analyst   10/02 – 12/02
- Debugged, maintained, and enhanced KPMG/Link Enterprise, an application that manages expatriate employees and related tax issues
- Performed and tested software builds

Prudential Financial, Iselin, NJ
Web/Application Developer   07/01 – 07/02
- Worked in a team to develop an award-winning application for content management and desktop publishing using ASP 3.0
- Developed a Visual Basic tool that tests the business logic of asset allocation software written in XML
- Designed and coded an ASP 3.0 user interface for Asset Allocation Online, a web application that enables a client to perform his or her own asset allocation by answering questions over the Internet
- Redesigned a series of web pages that contains the monthly performance review and daily unit values of variable life insurance products

ADP, Roseland, NJ
Web Developer Co-op   06/00 – 08/00
- Created an intranet site for the PCPI - Internet Payroll for the PC - department to keep all team members aware of their project's status
- Devised a JSP application that dynamically creates links to files within specific directories so that information can easily be added to the site without maintenance

Seton Hall University, South Orange, NJ
Software Developer   05/00 – 07/00; 05/99 – 07/99
- Provided new software for professors seeking teaching tools
- Proposed, designed, and developed a sorting algorithms demo in Java for use in the CDI - Curriculum Development Initiative - project
- Designed and developed a truth table constructor in Java for use in the CDI project

Publications: Brian Borowski and Dan Duchamp, *Measurement-based Underwater Acoustic Physical Layer Simulation*, in Proceedings of MTS/IEEE OCEANS 2010, September 2010, Seattle, Washington.

Brian Borowski and Dan Duchamp, *Short Paper: The Softwater Modem – A Software Modem for Underwater Acoustic Communication*, in Proceedings of the ACM International Workshop on Underwater Networks (WUWNet'09), November 2009, Berkeley, California.

Brian Borowski, *Characterization of a Very Shallow Water Acoustic Communication Channel*, in Proceedings of MTS/IEEE OCEANS 2009, October 2009, Biloxi, Mississippi.

Brian Borowski, Alexander Sutin, Heui-Seol Roh, and Barry Bunin, *Passive Acoustic Threat Detection in Estuarine Environments*, in Proceedings of SPIE Vol. 6945, March 2008, Orlando, Florida.

Brian Borowski, Heui-Seol Roh, Barry Bunin, and Alexander Sutin, *Estimation of Passive Acoustic Threat Detection Distances in Estuarine Environments*, in Proceedings of the 153rd Meeting of the Acoustical Society of America, June 2007, Salt Lake City, Utah.
(Placed second in the *Best Student Paper* competition of the Engineering Acoustics section)

Presentations: *The Softwater Modem – A Software Modem for Underwater Acoustic Communication*, ACM International Workshop on Underwater Networks (WUWNet'09), November 3, 2009, Berkeley, California.

Characterization of a Very Shallow Water Acoustic Communication Channel, MTS/IEEE OCEANS 2009, October 29, 2009, Biloxi, Mississippi.

Characterization of a Very Shallow Water Acoustic Communication Channel, Maritime Security Laboratory at Stevens Institute of Technology, October 5, 2009, Hoboken, NJ. (End-of-year review presentation given to ONR sponsor)

Elements of Channel Characterization, Maritime Security Laboratory at Stevens Institute of Technology, January 6, 2009, Hoboken, NJ.

A Software-Based Approach to Communication in Underwater Acoustic Sensor Networks, Stevens Institute of Technology, November 24, 2008, Hoboken, NJ. (Presentation used at thesis proposal defense)

Passive Acoustic Threat Detection in Estuarine Environments, Stevens Institute of Technology, March 28, 2008, Hoboken, NJ. (Presentation used at oral qualifying examination)

Estimation of Passive Acoustic Threat Detection Distances in Estuarine Environments, 153rd Meeting of the Acoustical Society of America, June 5, 2007, Salt Lake City, Utah.

Honors: Harvey N. Davis Distinguished Teaching Assistant Professor – September 2016
        Competitively awarded across all departments at Stevens Institute of Technology; 1 award granted at the rank
        of assistant professor
Stanley Fellowship, September 2009 – May 2010 (tuition, fees, and stipend)
        Competitively awarded across all fields at Stevens Institute of Technology; total of 8 awards granted
Stanley Fellowship, September 2008 – May 2009 (tuition, fees, and stipend)
        Competitively awarded across all fields at Stevens Institute of Technology; total of 10 awards granted
Upsilon Pi Epsilon – the Honor Society in Computing and Information Disciplines, December 2006
Technogenesis Fellowship, September 2005
Outstanding Computer Science Teaching Assistant, May 2004
First in Class, Summa Cum Laude, and Computer Science Departmental Honors Citation, May 2001
Pi Mu Epsilon – the Honorary National Mathematics Society, May 2000
Seton Hall Provost Scholarship (4-year, full tuition), September 1997

Education: **Stevens Institute of Technology**, Hoboken, NJ
Doctor of Philosophy in Computer Science, February 2011 (completed June 2010)   GPA 4.0/4.0
Dissertation: *Application of Channel Estimation to Underwater Acoustic Communication*
Advisor: Dan Duchamp
Graduate Certificate in Distributed Systems, January 2008
Graduate Certificate in Computer Systems, May 2007

Stevens Institute of Technology, Hoboken, NJ
Master of Science in Computer Science, May 2004   GPA 4.0/4.0
Graduate Certificate in Database Systems, January 2005 (completed May 2004)

Seton Hall University, South Orange, NJ
Bachelor of Science in Computer Science, May 2001   GPA 4.0/4.0
Minor: Mathematics

Music Experience: **Saint Bonaventure Church**, Paterson, NJ
Director of Music and Organist   11/91 – Present

Seton Hall University, South Orange, NJ
Assistant Organist/Cantor   09/97 – 05/01

Memberships: **ACM** (Association for Computing Machinery)
IEEE (Institute of Electrical and Electronics Engineers)
AGO (American Guild of Organists)

NPM (National Association of Pastoral Musicians)

Interests: Music, high fidelity stereo components, auto detailing

U.S. Citizen