

Jeff Cromwell, PhD

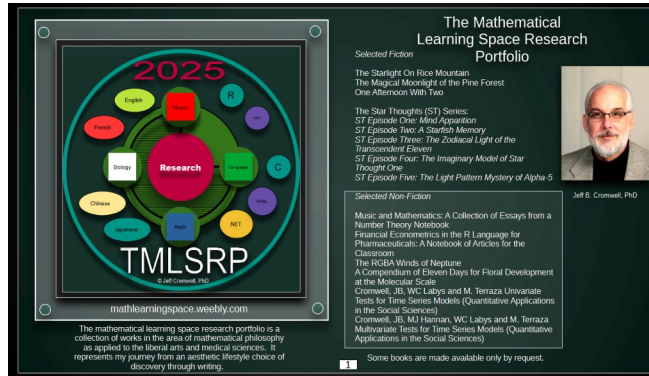


Figure 1: Business Card Front

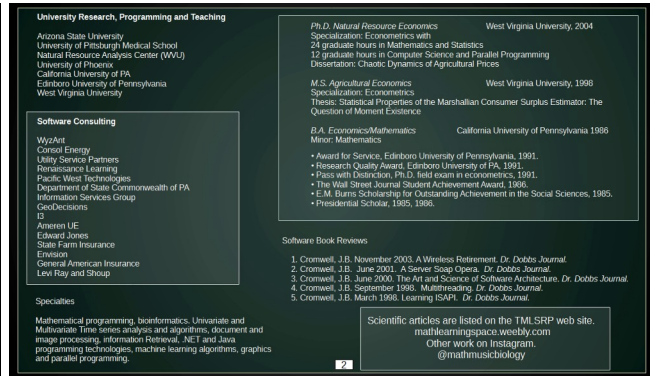


Figure 2: Business Card Back

Professional Summary:

My daily lifestyle choice is to write software for books, companies and universities: (1) Over 15 years of corporate experience as a Senior Application Designer and Developer, Systems Architect, and Project Manager with full life cycle architectural design, development, and team leadership experience with corporate Internet/Intranet, N-tier, and client server Information Systems in both .NET and Java technologies. Experienced in mathematical software in R, Java, MATLAB, CUDA and C++. Given presentations at several US academic institutions based on my software architectures and grant applications. Written internet and intranet software and led project teams for financial companies such as GenAmerica/MetLife, State Farm, and Edward Jones. (2) Over 9 years of academic experience with four years as an assistant professor that includes a two year research assistant professor position at West Virginia University (WVU), three years as a Lecturer at WVU, two years as an assistant professor at Edinboro University of PA, two years adjunct faculty at California University of PA, one and half years as an online instructor with the University of Phoenix and one semester at the University of Pittsburgh Department of Bioinformatics.

(3) Over 7 years of experience as an independent software consultant and writer.

Specialties:

Econometrics, mathematical programming, bioinformatics, Univariate and Multivariate Time series analysis and algorithms, document and image processing, information Retrieval, .NET and Java programming technologies, machine learning algorithms, graphics and parallel programming.

Social Media:

Instagram, X, Youtube, Goodreads, Google Scholar, Orchid, and LinkedIn links on mathlearningspace.weebly.com

Work Experience:

The Mathematical Learning Space Research Portfolio

1/2019-Present

Bridgeville, PA

mathlearningspace.weebly.com

Development of a literature of over 200 preprints in the biomedical and mathematical field, a dozen R packages and 20 books with proprietary R programs in the areas of mathematics, biology, econometrics, graphics, novels and music. Continued development of an artificial intelligence application named “HirokaOne” for speaking and writing in multiple languages such as R, Chinese and Japanese, .NET applications of Text to Speech, speech recognition, machine learning with document/image processing, math, music and biology applications.

Software Developer

Biomedical Informatics, College of Health Solutions,

Arizona State University

Tempe, AZ

9/2017-11/2017

Database Programming with SQL in PostgreSQL and User Interface Design in Javascript, CSS, HTML.

Mathematics Tutor

WyzAnt.com

Phoenix, AZ

2/2016-9/2017

While seeking work as a research professor and/or software engineer, worked as a mathematics tutor and writing scientific journal articles for NSF and NIH grant proposals. Subjects tutored included Courses in *Econometrics*, *Discrete Mathematics*, *Java* and *Statistics*. Personal projects in Mathematical Biology with Algorithmic Implementation in R, C, HTML5, Javascript, MySQL and SQL Server with LaTeX for both Sequential and Parallel Programming in SIMD, MIMD and multicore Intel and AMD Chip Designs with NVidia GPU based Graphic Cards. Software Dashboards with Kendo, Concept Maps, Graph theory for Architectural and UI Design Patterns in MVC model for CSharp.NET, C++.NET, HTML5, Javascript, CSS, R with Shiny and SQL based database engines.

Robert Half International Software Consultant

Consol Energy

Pittsburgh, PA

9/2015-11/2015

Designed Developed Data Management Algorithms with ASP.NET, VB.NET and SQL Server.
Designed Developed Database, Table/View Scripts, SQL for ASP.NET forms.

Oxford Solutions Software Consultant

Utility Service Partners

Pittsburgh, PA

8/2014-12/2014

Designed Developed and Implemented SQL Server based Reports with SSRS, SSIS, SSAS.
Reviewed, Modified, and Developed Data Management Algorithms in VB.NET for Statement Processing. Migrated ETL Algorithms from VB.NET to CSharp.NET.

Statistical Software Consultant

Renaissance Learning

Wisconsin Rapids, WI

12/2014-1/2015

(a) Team Lead Designed Developed Csharp.NET, NMATH Statistical Algorithms Metrics School Dashboards and Reporting. (b) Written Technical Proposal Predictive API Development Language for Regression Analysis. (c) Consultant Performance Benchmarking Statistical APIs NAG, NMath, R. (d) Participated Team Meetings Weekly Agility Sprints.

Chief Executive Officer

Neuronal Architects

Pittsburgh, PA

1/2013-12/2014

CEO/Founder of a company dedicated to building neuroscientific software both gaming and medical research. Specializing in the modeling of spatial-temporal time series modeling with multi-channel EEG signals. Invited to give presentations of software.

Adjunct Research Scientist

Center for the Neural Basis of Cognition

Pittsburgh, PA

7/2012-2/2013

Non-Funded Research Appointment to work with staff and resources for neural signal processing with NeuroExplorer, MATLAB and R packages. Worked on .NET applications for grant proposal for both SBIR and NSF. The .NET projects include: *Neural Maestro* and *Neural Cipher*.

Chief Executive Officer

The Cromwell Workshop

Pittsburgh, PA

6/2009-8/2012

Responsible for the Creation...Acceleration...Translation of software technologies into clinical applications for biomedical research. Worked on a two year research grant with the Department of Biomedical Informatics with the development of a C#.NET/Java based *iBIOFind 2* Application for the Resource Discovery System (RDS) and the C#.NET based *Model Maker 2* application for the development of time series and machine learning algorithms in the R statistical language for the SlideTutor application data. Worked with a client on a Java web application that included MyEclipse,

Spring, servlets, SQL for Hibernate and MySQL, Javascript for the generation of questions for high schools in video gaming applications. Submitted several SBIR grant applications to the National Institute of Health and gave several department presentations with iBiofind 2 and Model Maker 2.

Adjunct Faculty Instructor

University of Pittsburgh Medical School
Department of Biomedical Informatics
Pittsburgh, PA

8/2011-12/2011

Taught graduate courses in the biomedical informatics training program based on Java and JavaFx, Discrete Mathematics, Calculus, Probability Theory, MATLAB and the R statistical languages for biomedical applications.

Software Consultant

Pacific West Technologies
Wheat Ridge, Colorado

9/2008-11/2008

Re-engineered an arGIS 9.2 application with arcObjects that reported the state of road inventories for Wildlife Refuges for Federal Highways. The application used VBA with Excel and Word macros to generate the reports.

Adjunct Online Faculty

University of Phoenix
Phoenix, AZ

8/2008-7/2009

Faculty member in the College of Information Systems and approved to teach online mathematics, business systems and MBA courses in research methods. Taught 4 undergraduate courses in BSA/310 Business Systems and 7 MBA courses in QRB/501 Quantitative Reasoning for Business. Stopped online teaching to work with the Department of Biomedical Informatics grant applications at the University of Pittsburgh.

Senior Consultant

Department of State (DOS), Commonwealth of PA
Harrisburg, PA

6/2008-7/2008

Evaluated and optimized several stored procedures in SQL Server 2000 for searching in a VB.NET Smart Client and ASP.NET portal application using Web Services for Voter Registration and reporting of election night results. Provided recommendations for the optimization of web services in an SOA architecture using

- Asynchronous Execution Model for SOA
- Optimization of Stored Procedures with Denormalization
- Separation of threads between UI and Backend
- Synchronization of Distributed Cache with IP arrays

Wrote a multithreaded VB.NET application to do load testing for stored procedures and constructed a document that showed the benefits of removal of dynamic queries, table denormalization with respect to view creation, rewriting of SQL function to improve performance. Created Traces in SQL Server to examine CPU utilization and identify performance problems. Worked on the development of LoadRunner test scripts to do stress testing.

Senior Consultant

Information Services Group (ISG)
Harrisburg, PA

9/2007-4/2008

Responsible for the designing and writing of C#.NET 3.0 User and Lookless controls for a WPF console application in .NET 3.5 called FieldNavigator for the Pennsylvania State Lottery. In addition to the above, I developed window animations with page transitions and rotations in both C# and XAML. Designed and developed a variation on the tab, data grid with sorting capabilities using the list and tab item control, and a date picker controls for the application and used Xceed controls for WPF. Designed windows in Blend 2.0/2.5 with XAML, styles, and resource dictionaries and used LINQ for database communications with SQL Server 2005. We used SQL Server 2005 replication for developing local snapshots of the database of Field Navigator for Dell Tablet PCs. Developed Ink-based control for signatures and used MapPoint web services/ NUnit for an optimal routing package which used the Star Heuristic and Djisktra as one of the choices for an optimal path algorithm. Designed and developed stored procedures and used PDF generation with iTextSharp for middleware application for the FTP uploading of receipts coupled with LINQ for distribution of the data objects using observable collections. Also, wrote a testing application in C# to examine differences between SPROCs of different databases.

Senior Developer

GeoDecisions (Gannett-Fleming)
Harrisburg, PA

4/2007-8/2007

Responsible for designing and writing application modules in C#.NET 2.0, ASP.NET 1.1 and ASP.NET 2.0 and VB.NET 1.1 for both client/server and web applications. Projects included monitoring bus routes and patterns, a business intelligence application for environmental management along with a web based environmental management system. This includes the use of Telerik RAD controls such as AJAX panel, Grid, Calendar, and Upload.

Software Consultant .NET/GIS Developer

I3
Fort Collins, CO

1/2007-2/2007

Translated and developed Use Cases into a legacy application known as TEUI -an image processing tool for the US Forest Service. Application framework included arcGIS arcObjects, Visio and the open source database framework Raptier development work done in C# and arcMap 9.1. Raptier was used to build the personal geodatabase. The application uses web services to download the raster images for the study area before performing the image processing. Subversion was used for source control. All work was done remotely from my home in Pennsylvania.

Research Assistant Professor

Department of Agricultural Economics

Natural Resource Analysis Center

Morgantown, WV

8/2004 – 8/2006

Senior Visual Studio .NET Developer/Architect/Project Manager and Researcher on an arcGIS based class library for a grant written to the WV Department of Environmental Protection for the development of hydrological tools. The Watershed Characterization Modeling System (WCMS) is the arcMAP extension that permits WV extension offices that ability to determine the impact on water quality for a proposed mine site in their district. The many components contain in the WCMS decision support system (DSS) are the .NET Framework, arcObjects, C#, VB.NET as the base wrapper for the extension tool, the statistical package R, Fortran 90 for the hydrology application and Oracle 9i database.

Other Software Consulting Experiences:

Ameren UE 2002-2003 - .NET Software Developer Saint Louis, MO

Edward Jones 2000-2001 - .NET Software Developer Saint Louis, MO

State Farm Insurance 2001-2002 - .NET Software Developer Saint Louis, MO

Envision 2000-2001 - .NET Software Developer Saint Louis, MO

Dr. Dobbs Journal 1998-2000 – Magazine Writer

General American 1998-2000 - .NET Software Developer/Manager Saint Louis, MO

Levi Ray and Shoup 1996-1998 – ASP.NET/Java Writer Saint Louis, MO

Full-time and Part-time Faculty Experience:

2012-2013	Adjunct Research Scientist, Center for the Neural Basis of Cognition, Carnegie Mellon University
2011-2012	Adjunct Instructor and Software Consultant, Department of Biomedical Informatics, University of Pittsburgh Medical School
2008-2009	Adjunct Online Faculty, University of Phoenix
2004-2006	Research Assistant Professor, Natural Resource Analysis Center, Department of Agricultural and Resource Economics, West Virginia University
1993-1996	Lecturer, Office of Human Resources Research, West Virginia University
1990-1993	Visiting Assistant Professor, Department of Business and Economics, Edinboro University of Pennsylvania
1990-1992	Lecturer, Department of Business and Economics, California University of PA
1987-1990	Research Assistant, Department of Agricultural Economics, West Virginia University
1986-1987	Research Assistant, Regional Research Institute, West Virginia University
1984-1986	Math Tutor, Math Department, California University of Pennsylvania

Education:

Ph.D. Natural Resource Economics West Virginia University, 2004

Specialization: Econometrics with

24 graduate hours in Mathematics and Statistics

12 graduate hours in Computer Science and Parallel Programming

Dissertation: *Chaotic Dynamics of Agricultural Prices*

M.S. Agricultural Economics West Virginia University, 1998

Specialization: Econometrics

Thesis: *Statistical Properties of the Marshallian Consumer Surplus Estimator: The Question of Moment Existence*

B.A. Economics California University of Pennsylvania 1986

Minor: Mathematics

Selected Non-Refereed Articles and Selected Communications:

For a complete list of articles for scientific journals and books, please inquire by email.

1. Cromwell, J.B. May 2008. The R Statistical Language and C#.NET: Foundations.
2. Cromwell, J.B. May 2000. Letter to the Editor: Worker Shortages. *Dr. Dobbs Journal*.
3. Cromwell, J.B. and R. Stroede. Spring 1998. Information at your Fingertips: A Candid Look at Windows CE. LRS On-Line Magazine.
4. Cromwell, J.B. Summer 1997. Where's My Script? Client/Server Scripting on the Net. LRS On-Line Magazine.

Selected Book Reviews:

1. Cromwell, J.B. November 2003. A Wireless Retirement. *Dr. Dobbs Journal*.
2. Cromwell, J.B. June 2001. A Server Soap Opera. *Dr. Dobbs Journal*.
3. Cromwell, J.B. June 2000. The Art and Science of Software Architecture. *Dr. Dobbs Journal*.
4. Cromwell, J.B. September 1998. Multithreading. *Dr. Dobbs Journal*.
5. Cromwell, J.B. March 1998. Learning ISAPI. *Dr. Dobbs Journal*.

Teaching: University Courses and Seminars

- Graduate Courses in Biomedical Informatics: MATLAB, R, and Java
- Graduate Courses: Lectures in Econometrics and Commodity Modeling

- Undergraduate Courses: Microeconomics, Macroeconomics, Business Statistics, Quantitative Business Methods, Mathematics Foundations, Probability and Statistics and Personal Finance.
- Continuing Adult Education Classes: Personal Computers, Off-Duty Conduct Regulation, Computer Software for Collective Bargaining, American Disabilities Act and Privacy Rights.
- Seminars: Time Series Workshops at the University of Michigan, West Virginia University Electrical Engineering Department, OSHA Conference, Washington DC, University of San Diego Supercomputer Institute, Neuroscience Conference, Carnegie-Mellon University, R Users Conference, Bethesda Maryland, Department of Biomedical Informatics, University of Pittsburgh.

Awards:

- Award for Service, Edinboro University of Pennsylvania, 1991.
- Research Quality Award, Edinboro University of PA, 1991.
- Pass with Distinction, Ph.D. field exam in econometrics, 1991.
- The Wall Street Journal Student Achievement Award, 1986.
- E.M. Burns Scholarship for Outstanding Achievement in the Social Sciences, 1985.
- Presidential Scholar, 1985, 1986.