AGILE SOFTWARE FACTORY ANNUAL REPORT

Dr. Joseph Chao
Associate Professor, Department of Computer Science
Director of Agile Software Factory at BGSU

OVERVIEW

From the perspective of the University as a whole, the chief benefit of the Agile Software Factory comes from the service-learning opportunities it generates for our students. Service-learning integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. In computer software development, service learning provides students with hands-on real-world project experience that cannot be replicated in tightly controlled classroom projects.

The specific mission of the Factory is …

- to provide software services using agile methods for in-house and community partners who are in need of software development and, through these services,
- to provide hands-on service-learning opportunities to students in the BGSU Computer Science program.

Agile methods emphasize the production of small software units that are coded every few days to facilitate speedy turn-around of reactions from clients and faster overall development paths.

The Factory serves as a clearing house for project requests from in-house and community partners. Accepted projects provide agile software development opportunities for students while, at the same time, satisfying the needs and requirements of the Factory's internal and external clients. The Factory also promotes faculty and student research in the area of agile software development, including research that compares and contrasts the agile methodology with traditional methodologies.

The Factory offers a range of software development services to its clients, including new software development, re-implementation or re-design of existing software, and maintenance of software previously delivered by the Factory.

Students benefit from the addition of a service-learning component to existing software development courses, from career-relevant part-time employment, from participation in independent research/development projects with senior faculty, and from work experiences similar to internships (co-ops).

Currently, the Factory employs a project manager, three Graduate student developers, and five undergraduate student developers. They are working on three major software projects.

For more information about the Agile Software Factory, please visit http://agile.bgsu.edu.

SPONSORSHIPS

The Agile Software Factory received **start-up support** from the following sources:

- Agile Alliance awarded a $21,000 grant for personnel, marketing, and travel.
- BGSU's Department of Computer Science (CS) provided an office with desk equipment and space for three Factory workers. The College of Arts and Sciences provided a course release for the Factory's Director for the first year.
- BGSU's Information Technology Services (ITS) provided a UNIX server, four Windows workstations, a Graduate Assistant, and high-speed Internet connectivity.

The Factory receives **continuing support** from the following sources:

- CS currently provides two offices with desk equipment and space sufficient for six Factory workers. The Factory's nine employees time-share this space. The Department also provides limited secretarial support, telephone service, copy services, fax services, mailing services, a conference room, security systems, limited technical support, standard office supplies, along with financial services and oversight related to the administration of the Factory's budget.
- ITS continues to provide servers and workstations for the Factory, high-speed Internet connectivity, and a Graduate Assistant.

MARKETING EFFORT

ASF has increased awareness of the computer science program and provided new opportunities for future projects through the use of marketing materials and promotional items. In 2008, ASF created its website, agile.bgsu.edu, and produced a marketing brochure through BGSU Marketing and Communications. From 2008 to 2009, ASF developed promotional items, including t-shirts and ceramic mugs. Interviews were also conducted with various media sources, including journals, magazines and a newspaper:

Date	Media Source
12/04/08	Onstrategies
12/08/08	DZone
12/08/08	Project@Work
12/09/08	Application Development Trends
12/10/08	Project@Work interview with two students
12/10/08	BG Sentinel Tribune
12/10/08	Agile Journal
12/11/08	Ganthead Magazine
12/17/08	InfoQ

Publications

Agile Software Factory was also featured in the following articles:

1. Agile Alliance, "Agile Alliance Joins Bowling Green State University to Form Agile Software Factory", press release, December 15, 2008.
2. Bowling Green Sentinel-Tribune, "BGSU matches students and software," December 15, 2008.

3. Project@Work, “Agile Alliance, Bowling Green Launch Initiative”, December 15, 2008.
4. InfoQ, “Bowling Green Students Build Agile Software for Non-Profit Clients”, December 22, 2008.
5. Project@Work, “Big Method on Campus: Agile”, January 15, 2009.
6. Agile Development Trend, “University’s Agile Software Factory Aims to Fill Enterprise Demand”, January 16, 2009.

RESEARCH PUBLICATIONS AND PRESENTATIONS

1. Pfundstein, N., Chao, J. and Kresman, R. (2009), "An Application Architecture for E-Voting," *The 2nd International Conference on Computer Science and Software Engineering* (CSSE '09), Wuhan, China, December 11-13, 2009.
2. Chao, J. and Brown, J. (2009), “Collaboration of Two Service-Learning Courses: Software Development and Technical Communication,” *Journal of Informing Science and Information Technology,* 2009.
3. Chao, J. and Brown, J. (2009), “Empowering Students and the Community through Agile Software Development Service-Learning,” *The Tenth International Conference on Agile Processes and eXtreme Programming in Software Engineering (XP 2009)*, Sardinia, Italy, May 26 - 30, 2009.
4. Chao, J., & Randels, M. (2009). Agile software factory for student service learning. *Proceedings of the 22nd Conference on Software Engineering Education and Training (CSEE&T '09),* Hyderabad, India, February 17 - 19, 2009.
5. Randles, M. and Chao J. (2009), Poster Session, “Empowering Students and the Community through Agile Software Development Service-Learning,” *The 3rd Annual BGSU Teaching and Learning Fair*, Bowling Green, OH, February 6, 2009.
6. Chao, J. (2009), Presentation, “Agile Software Factory for Student Service-Learning,” BGSU Faculty Focus Series, January 30.
7. Chao, J. (2009), Presentation, “Empowering Students and the Community through Agile Software Development Service-Learning,” BGSU Service-Learning Faculty Learning Community, November, 2008.
8. Chao J. and Randles, M. (2008), Poster Session, “Agile Software Factory at BGSU,” *The 7th BGSU Research Conference*, Bowling Green, OH, November 6, 2008.

FALL 2008 SERVICE-LEARNING COURSE PROJECTS

In fall 2008, Dr. Chao used the service-learning software development approach in his CS4640/5640. The course encompassed projects for non-profit organizations, including the service-learning class worked on 6 projects, including a:

1. Victim Case Tracking System for Wood County Behavioral Connections;
2. Employee Database System for Neighborhood Property, Inc.;
3. Service Reporting System for Wood County Cocoon Shelter;
4. Service-learning Information System for the Office of Service Learning at BGSU;
5. Student Activity Matching System for Eastwood Middle School;
6. E-Voting System for Ohio High School Speech League.

FALL 2009 SERVICE-LEARNING COURSE PROJECTS

Dr. Poor continued to use the service-learning software development approach in his CS4640/5640 for fall 2009. The course encompassed projects for non-profit organizations, including Global Connection, Victory Center, and Bittersweet Farms.

1. Global Connection is a non-profit organization located in Bowling Green, Ohio, that serves the international community by providing cultural events to introduce those interested to the local culture. Students created a website, www.globalconnections-bg.org.
2. The Victory Center is northwest Ohio's only independent, full service cancer wellness center. Students accomplished the development of a website, www.thevictorycenter.org.
3. Bittersweet Farms in Whitehouse, Ohio provides assistance in the areas of residential communities, supported living, vocational services and specialized services. Students developed a new website for the company, www.bittersweetfarms.org.

INTERNAL PROJECTS

In-House Projects

ASF performed maintenance on and added new features to the Faculty Senate Online Election System for BGSU, which is currently in use for the University Standing Committee election. ASF also created an online survey system for university use.

For-Hire Projects

1. ASF developed a research application for Dr. Carol Heckman, Department of Biology, and $400 was received for the project.
2. ASF developed a new website for WFAL Falcon Radio, falconradio.org, and received $4,000.00 for the project.
3. ASF created an online program assessment and evaluation tools for the *BGSU Office of Vice President of Student Affairs,* for Brady Gaskins, Coordinator of Assessment, Planning, and Technology. $2,000.00 was invoiced for the project.
4. ASF created an online assessment tool for the Center of Excellence in Science and Mathematics Education: Opportunities for Success (COSMOS), and $1,000.00 has been invoiced.

Participating in Science, Engineering & Technology Gateway Ohio (SETGO) Program

1. Nick Pfundstein, a junior of Computer Science, was accepted into the SETGO Summer Research Program from 8 June 2009 to 14 August 2009, and worked with Dr. Joe Chao and Dr. Ray Kresman at ASF in building secured software systems.

MS Student Graduation Projects

1. ASF developed a Baseball Statistics Analysis System for the *Office of Technology Transfer & Services at BGSU, for* clients Bill Johnston and Dr. Geoffrey Meek from the School of Human Movement, Sport, and Leisure Studies (HMSLS).

EXTERNAL PROJECTS

For-Hire Projects

1. ASF developed a new website for Jing Chuan Restaurant, and $1,600.00 was received for the project.
2. ASF redesigned the existing website of Neighborhood Property, Inc., www.neighborhoodproperties.org, with the addition of a virtual tour feature, and $2,200.00 was received for the project.
3. The Kinship Navigator Program within the Area Office on Aging of Northwestern Ohio, Inc. desired two software systems: (1) a specialized information system and (2) an interactive website. The ongoing project was proposed to go from October 1, 2009 to April 30, 2010 with a total cost of $79,200. However, this project was not funded.
4. In August, 2009, ASF signed a contract, through the BGSU Office of Technology Transfer, with Root Learning, Inc., a creative learning strategy company, for a web development project estimated a total of $120,000. Students work under the supervision of Dr. Joseph Chao and Dr. Ronald Lancaster at the Department of Computer Science, on an online training system for a large international bank. Students work in a team environment developing 52 English and 52 French state-of-the-art web training modules. The project began on August 24, 2009 and is projected to last through May 31, 2010. The ongoing project has revealed the budget of $46,474.50 to date. A monthly breakdown of this budget is listed below.

Month	Payment Received
August	$2,550.00
September	$14,937.00
October	$15,189.50
November	$13,798.00

STUDENT EMPLOYMENT

Agile Software Factory has employed a diverse team of student developers. Details on each student's field of study, class standing, and employment interval are listed in the table below.

Student Name	Field of Study	Class Standing	Start Date	End Date
Benjamin Beverly	Computer Science	Junior	Sep. 2009	
Ryan Burk	Computer Science	Graduate	Aug. 2009	
Ann Criqui	Business Administration	Graduate	Aug. 2009	
Justin Collier	Computer Science	Junior	Sep. 2009	
Stephen Durfey	Computer Science	Senior	May 2009	Aug. 2009
Gregory Jenkins	Visual Communications in Technology	Junior	Mar. 2009	
Jason Lyle	Computer Science	Senior	Sep. 2009	
Prateek Moturi	Computer Science	Graduate	Jan. 2009	
Nicholas Pfundstein	Computer Science	Junior	May 2009	
Anthony Pietz	Computer Science	Junior	Jan. 2009	Apr. 2009
Josh Quintana	Computer Science	Sophomore	Feb. 2009	Sep. 2009
Mark Randles	Computer Science	Graduate	Aug. 2008	

BUDGET INCOME AND EXPENSE REPORT

Budget year 2009	
Budget	$1,098.46
Income	
Dept. of Biology	$400.00
Falcon Radio	$4,000.00
Expense	
Misc expense	$822.96
Balance	**$4,675.50**

Budget year 2010 (as of 12/10/09)	
Budget	$4,675.50
Income	$0.00
Expense:	
Payroll	$15,479.30
Other	$187.41
Balance	**-$10,991.21**
Encumbrance	$4,928.94
Balance	**-$15,920.15**
Income received, but not yet distributed, at BGSU Office of Technology Transfer	
Jing-Chuan Restaurant	$1,600.00
Neighborhood Property	$2,200.00
Root Learning (Aug Invoice)	$2,550.00
Root Learning (Sep Invoice)	$14,937.00
Account receivable	
BGSU Student Affairs	$2,000.00
Root Learning (Oct Invoice)	$15,189.50
Root Learning (Nov Invoice)	$13,798.00
Expected Balance	**$36,354.35**