

# Software Plan

## Siena Implicit Association Test (Siena IAT)

### **Requested By:**

Dr. Eric Breimer  
Professor of Computer Science  
Siena College

### **Delivered By:**

FSH Tech

### **Prepared By:**

Jacquelyn Boylan  
Matthew Brancato  
Matthew Kemmer  
Serena Moore  
Nydia Negrón  
Mike Tanski

September 23, 2011

# Siena IAT

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# System Definition

## 1.1 Problem Definition

Our potential client, Dr. Breimer, would like an easy way to create an IAT (Implicit Association Test) in an online environment in order to obtain data for research. An IAT is a tool that psychologists use to study people's innate thoughts and opinions about particular groups of people by observing their reaction time to stimuli objects they are presented with. He wants to be able to send out the tests that he creates, and he would like to be able to receive immediate feedback from participants. He also needs to obtain more information about the person taking the test, so he would like us to use a survey tool to collect this information.

## 1.2 System Justification

According to Dr. Breimer, one of the hardest parts of creating an IAT is choosing the correct stimuli objects for the users to look at. He would like to spend most of his time worrying about this aspect, rather than creating an interface to create and use an IAT, which is why he needs this interface at his disposal. It is important to use software to implement this program because it is the most accurate way to record the user's reaction time. Any other way of recording results would not be as accurate, and incorrect results would result in false research reports.

## 1.3 System Goals

Dr. Breimer would like us to create a tool that he can upload stimuli objects to, and use them to create an IAT. He would like this tool to be web-based. He would like to be able to go back and manage the IATs he has created at any time. Once the IAT is created, he would like to be able to send out a hyperlink to the people he would like to take the test. He also needs a way to view the feedback information from taking the test.

## 1.4 Constraints

Dr. Breimer has stated that he would like a web-based system to deploy the IAT. He also stated that he would not like for the IAT to be implemented using Flash, because it is not supported on every device that the Internet can be accessed on. He would like the IAT to be implemented using JavaScript. He also stated that he would prefer the back end work to be implemented using PHP, but he would also entertain Ruby on Rails.

## 1.5 Functions To Be Provided

The client will be able to create IATs by providing stimuli images and/or words to the system. The system will then create the IAT around the stimuli and be deployed online where it will be publicly accessible to test takers. The detailed results of the test will be available to the client and he will be able to edit IATs once they are online. If time allows, the system will be able to determine if a test taker is cheating (i.e. has figured out how they are being graded while the test is going on).

## 1.6 User Characteristics

- The client, Dr. Breimer, will be able to create, manage, and deploy an unlimited number of IATs on a web-based server. Dr. Breimer will also be able to view the feedback from the users taking his test at any time.
- The user taking the IAT will be able to view the stimuli objects Dr. Breimer has provided in the IAT, and be able to respond by pressing the designated key as quickly as they can. Anyone who has the IAT link to will be able to take the test.

## 1.7 Development/Operating/Maintenance Environments

### 1.7.1 Development Environment

The project will be developed in the Software Engineering Lab, RB 348, by FSH Tech. We will use the following tools that exist in this lab

#### Server:

Server Name: oraserv.cs.siena.edu  
Database: MySQL Version 5.0.45; Oracle Version 9.0.1  
Operating System: CentOS (Linux) Release 5.2 (Final)  
CPU Type: x86\_64  
Web Server: Apache Version 2.2.9  
PHP Version: 5.2.6

#### Windows Computer:

Operating System: Windows Vista Enterprise (6.0, Build 6002)  
Model: Dell OptiPlex 760  
Processor: Intel Core 2 Duo  
Speed: 2.93 GHz  
Memory: 3 GB

#### Macintosh Computer:

Operating System: Mac OS X 10.6.4  
Model: iMac 5.1  
Processor: Intel Core 2 Duo  
Speed: 2 GHz  
Memory: 1 GB

### 1.7.2 Operating Environment

The project will be operating on the web with a JavaScript interface.

### 1.7.3 Maintenance Environment

The IAT will be maintained by the client, Dr. Breimer.

## 1.8 Solution Strategy

**Software Plan:** Defining Dr. Breimer's problem from meetings and research, and gaining a basic understanding of what needs to be accomplished in order to solve the problem.

**Requirement Specifications:** Lays out a list of requirements and forms them into a list of goals necessary to accomplish in order to better understand Dr. Breimer's problem and figure out a solution.

**Preliminary Design:** Translating the requirements outline into a first-draft software design that will satisfy Dr. Breimer's problem.

**Detailed Design:** Enhancing the work done in the preliminary design to fully create a software web-based interface to implement the IATs.

**Acceptance Test:** Testing of the final software product created in the detailed design, and making sure that all requirements are met and that the client is satisfied.

## 1.9 Priorities of System Feature

- 1) The main goal in solving Dr. Breimer's problem is to develop software that will create an IAT. The IAT will be based online. Dr. Breimer will be able to view the results of the people who took the test.
- 2) Dr. Breimer would like to be able to go back and edit and manage the material in the IAT at any time.
- 3) Dr. Breimer would like to have is the ability to delete an IAT. His main concern is with creating and managing the IATs, but it is good to be able to delete unused information.
- 4) Since there is a chance that the users taking the IAT might be cheating and might be taking the test inaccurately, Dr. Breimer would like a way to look into detecting if the test taker is cheating. This is not a strong focus of the project, but it is something he would like us to investigate if there is a way to detect.

## 1.10 System Acceptance Criteria

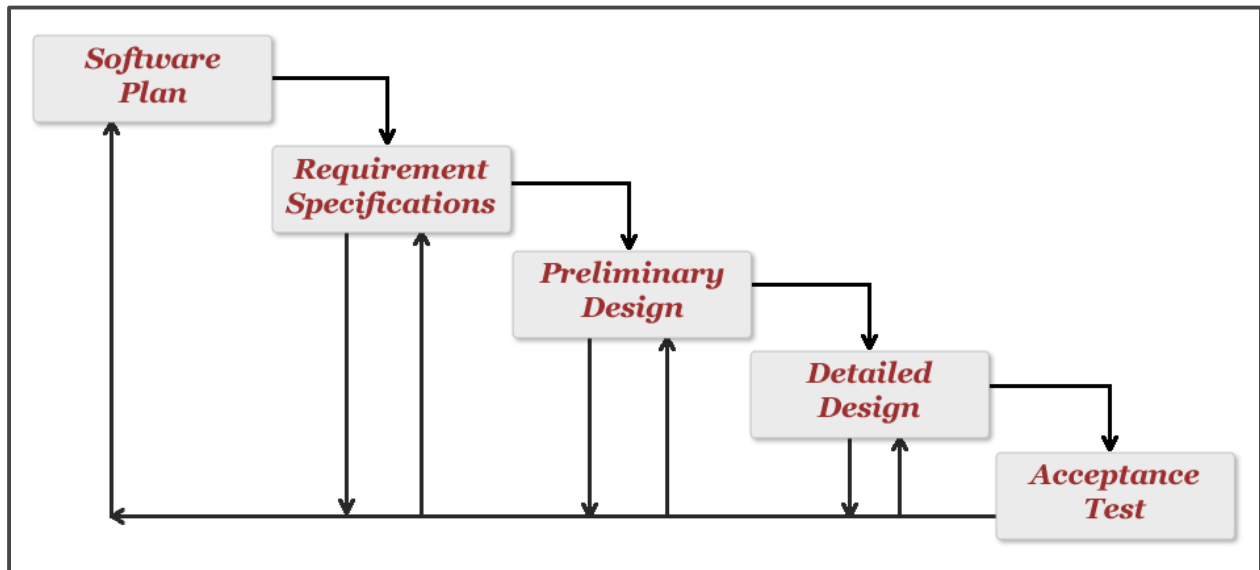
Dr. Breimer's main goal in having an IAT system developed is to be able to create an IAT, view the results from users taking the IAT, and having the ability to go back and manage the IAT's previously created. He also expressed the desire to have the system user-friendly to both him and to the test taker.

## 1.11 Sources of Information

The client Dr. Breimer will provide us with information about his problem throughout the semester. Our professor Dr. Lederman will also provide information about software engineering and software development. We will have available to us Harvard's IAT background research information to further learn about IATs.

# Project Plan

## 2.1 Classic Waterfall Model



**Software Plan:** Defining Dr. Breimer’s problem from meetings and research, and gaining a basic understanding of what needs to be accomplished in order to solve the problem.

**Requirement Specifications:** Lays out a list of requirements and forms them into a list of goals necessary to accomplish in order to better understand Dr. Breimer’s problem and figure out a solution.

**Preliminary Design:** Translating the requirements outline into a first-draft software design that will satisfy Dr. Breimer’s problem.

**Detailed Design:** Enhancing the work done in the preliminary design to fully create a software web-based interface to implement the IAT.

**Acceptance Test:** Testing of the final software product created in the detailed design, and making sure that all requirements are met and that the client is satisfied.



## 2.2 Team Organizational Structure

FSH Tech consists of the following members:

<u>Name</u>	<u>Email</u>	<u>Phone Number</u>
Boylan, Jacquelyn	<a href="mailto:jm31boyl@siena.edu">jm31boyl@siena.edu</a>	(631) 965-1433
Brancato, Matthew	<a href="mailto:ml06bran@siena.edu">ml06bran@siena.edu</a>	(845) 591-4594
Kemmer, Matthew	<a href="mailto:me21kemm@siena.edu">me21kemm@siena.edu</a>	(518) 955-5807
Moore, Serena	<a href="mailto:sn29moor@siena.edu">sn29moor@siena.edu</a>	(585) 943-0777
Negron, Nydia	<a href="mailto:n17negr@siena.edu">n17negr@siena.edu</a>	(518) 588-4910
Tanski, Mike	<a href="mailto:ms13tans@siena.edu">ms13tans@siena.edu</a>	(518) 470-7430

Team Positions:

### Team Leader: **Matthew Kemmer**

The responsibility of the team leader is to organize and manage both the client meetings and the group meetings. It is the Team Leaders responsibility to contact and communicate with the client, and make sure they are satisfied. It is also their job to make sure that the group meets its deadlines.

### Sub-Group Leader: **Serena Moore**

The sub-group leader's job is to take over the responsibilities of the team leader if they cannot fulfill their responsibilities. They can also be asked at any time to assist the team leader with any of their responsibilities.

### Webmaster: **Mike Tanski**

The webmasters job is to create and maintain the team's website, and put the necessary information in a neat and orderly fashion so it is both well organized and easily accessible.

### System Administrator: **Matthew Brancato**

The job of the system administrator is to make sure the computers the team is using and the software on these computers is constantly up-to-date and working correctly.

### Librarian: **Jacquelyn Boylan**

The duty of the librarian is to keep track of the information that is discussed during both the client meetings and the team meetings that pertain to the project.

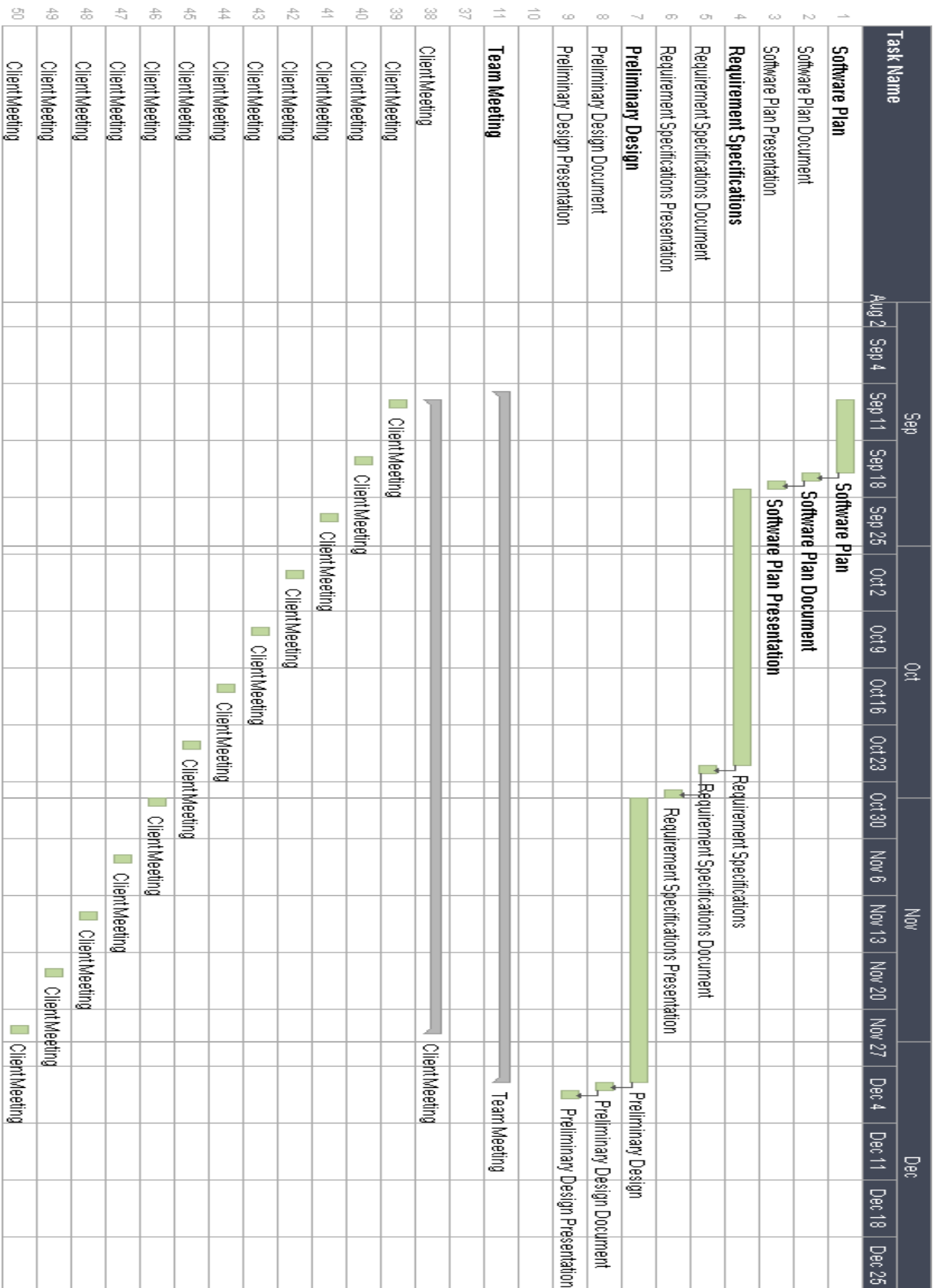
### Head Researcher: **Nydia Negron**

The job of the head researcher is to gather all information and documents necessary in order to better understand the client's problem.

## 2.3 Preliminary Staffing & Resource Requirements

In order to solve Dr. Breimer's problem, the six members of FSH Tech (see section 2.2) will collaborate their skills learned from previous projects in order to provide Dr. Breimer with a working IAT system. FSH tech will be using the computers in the Software Engineering Laboratory, Roger Bacon 348, which consists of Microsoft Windows and Macintosh computers (see section 1.7.1 for more details). We will also be provided information from our client Dr. Breimer, and experienced faculty member Dr. Lederman.

## 2.4 Development Schedule



## 2.5 Projecting Monitoring & Control Mechanisms

In order to stay on task throughout the year, our team will hold bi-weekly team meetings, as well as a weekly client meeting with Dr. Breimer. We will use Google Calendar and Google Docs to manage schedules and documents, as well as maintaining constant communication through emails.

## 2.6 Tools & Techniques

In order to stay organized with making meetings that everyone will be able to attend, FSH Tech will be using Google Calendar. In order to keep everyone on the same page, the Librarian's job is to keep the notes from each meeting on Google Docs for group access. The Librarian will also use the application QuickVoice to record client and group meetings to ensure that all major points are recorded and kept track of at each meeting.

FSH Tech will also be using the applications Net Beans and Adobe Suite CS 4 in order to develop the IAT software for Dr. Breimer. FSH Tech will also need to use web browsers such as Google Chrome and Mozilla Firefox.

## 2.7 Programming Languages

The programming languages FSH Tech must be able to use are JavaScript, HTML, CSS, PHP, and SQL.

## 2.8 Testing Requirements

The testing of Siena IAT will be done throughout its development. There will be testing by multiple members of FSH Tech in the back end, and it will be documented. The information that comes from the results will be provided to the client.

## 2.9 Supporting Documents Required

In order to gain all the information necessary to completely comprehend and scope out the necessary steps to complete the IAT system, the following documents will be provided by us to the client throughout its development:

- 1) The Software Plan
- 2) The Requirement Specifications
- 3) The Preliminary Design

## 2.10 Time of Documentation & Delivery

The due dates for the supporting documents are as follows:

- |                                |                    |
|--------------------------------|--------------------|
| 1) Software Plan:              | September 22, 2011 |
| 2) Requirement Specifications: | October 28, 2011   |
| 3) Preliminary Design:         | December 6, 2011   |

## 2.11 Method of Demonstration

The details of the supporting documents will be presented with a Microsoft Power Point slide show on the following dates:

- |                                |                    |
|--------------------------------|--------------------|
| 1) Software Plan:              | September 23, 2011 |
| 2) Requirement Specifications: | October 31, 2011   |
| 3) Preliminary Design:         | December 7, 2011   |

## 2.12 Sources of Information

The client Dr. Breimer will provide us with information about his problem throughout the semester. Our professor Dr. Lederman will also provide information about software engineering and software development. We will have available to us Harvard's IAT background research information to further learn about IATs.

# **Appendix A:**

## **Team Resumes**

## Jacquelyn Boylan

79 Saddle Rock Rd  
Setauket, NY, 11733

Email: JM31Boyl@Siena.edu

Cell: (631) 965-1433

### **Objective**

Use the skills I have learned in the classroom and in work to gain further experience in the computer science field to solve real world problems in a collaborative and learning environment.

### **Education**

Siena College, Loudonville, NY: May 2012

Bachelors of Science, Computer Science

Mathematics Minor

Computer Science GPA: 3.13

Presidential Academic Scholarship: 2008-Present

### **Related Experience**

Putnam Valley Central School District, Putnam Valley, NY: Database Intern (Summer 2011)

Developed Teacher Evaluation System using FileMaker Pro to enter, maintain, and report evaluations for teachers and administrators.

Database supported a detailed human interface with multiple accounts having different privileges for data access. Resulting database reports will be reported to New York State for yearly evaluation requirements.

### **Freelance**

Created database using Microsoft Access to maintain customer orders for multi site bakery.

Also assisted with office application setup and customization for streamlined operations.

### **Programming Language Experience**

C	Java
LaTeX	MIPS
SQL	Visual Basic

### **Computer Science Classes Completed**

Assembly Language and Computer Architecture

Communications and Networks

Data Base Management

Analysis of Algorithms

Object-Oriented Design and Programming

Data Structures

Software Engineering

Discrete Mathematics

Web Application and Development (PHP)

### **Extra-Curricular Activities**

Association for Computer Machinery (Women) Fall 2010 – Present: Secretary Fall 2011

Siena College Admissions Ambassador Spring 2009 – Present

Intramural Volleyball Fall 2009

Siena College Admissions Pathfinder Fall 2008

### **Additional Employment**

Rolling Pin Bakery, Setauket, NY: Counter Girl (May 2005 – Present: current vacation fill-in)

Assisting and taking orders from catering hall accounts island-wide

Assisting owner with high-pressure situations.

# MATTHEW BRANCATO

90 KENT LAKE AVE  
CARMEL, NY 10512  
(845)591-4594  
ML06BRAN@SIENA.EDU

## OBJECTIVE

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A position that will make the best use of my current abilities and push me to learn new skills.

## EDUCATION

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**Computer Science, Bachelor of Science** May 2012  
Siena College, Loudonville, New York

**Courses Taken Include:**

Software Engineering I                  Database Management Systems  
Human-Computer Interaction      Networks and Communications

## EXPERIENCE

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**Pharmacy Assistant** July 2006 – Present  
Putnam Hospital Center, Carmel, New York

**Freelance IT Agent** September 2006 – Present  
Carmel, Ny

Provided software and hardware support for clients as well as free consultations. Specialization in Desktop PC assessment and construction. Set-up and optimized new PC's by removing bloatware and adding desired products such as anti-virus and office suite. Performed data backups and set up additional back-ups. Recovery of data from damaged media. Performed malware removal. Provided training to clients regarding new products. Setup home networks. Configured software to user preferences. Advised clients in smart computing habits. Set-up home theaters.

### Technical Skills

BlueJ IDE  
Eclipse IDE  
GIMP  
MS Office Suite  
P2P Software

HTML  
Java  
Visual Basic

Oracle

Linux  
Windows  
2000,XP,Vista,7



# Matthew Kemmer

me21kemm@siena.edu

## Permanent Address

9 Brookside Drive  
Saratoga Springs, NY, 12866  
Cell: (518) 955-5807

## Present Address

SPOB 3443  
515 Loudon Road  
Loudonville, NY, 12211

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**Objective:** To obtain a position designing or programming computer software

## Education

Siena College, Loudonville, NY

**Bachelor of Science:** Computer Science, May 2012

**Minors:** Mathematics, Spanish

**Cumulative GPA:** 3.68

**Computer Science GPA:** 3.96

## Computer Skills

**Programming:** Proficient in Java. Familiar with Visual Basic, Alice, Python, SQL

**General:** Comfortable with Microsoft Office products and Linux OS

## Work Experience

*Team Leader*, **Siena Software Engineering**, Loudonville, NY, Fall 2011

- Managed a team of 6 students on the preliminary design phase of a year-long software design project

*Researcher*, **Siena Twitter Information Retrieval System**, Loudonville, NY, Summer 2011

- Worked with a team of 6 students and 2 professors to develop an IR system designed specifically for Twitter

*Tutor*, **Siena College CS Department**, Loudonville, NY, School Semesters Fall 2009 - Present

- Group tutor for Java and Alice programming classes

## Relevant Coursework

Introduction to Programming, Data Structures, Object Oriented Design, Analysis of Algorithms, Assembly Language and Computer Architecture, Discrete Structures I and II, Data Base Management, Introduction to Artificial Intelligence

## Academic Achievements

**Upsilon Pi Epsilon:** Computer Science Honor Society, inducted Spring 2011

**Siena College Dean's List:** Fall 2008, Spring 2009, Fall 2010, Spring 2011

**Siena College President's List:** Spring 2010

## Activities

**Footbag:** Spring 2006 - Present

- Alternative sport similar to juggling with feet and legs. Attended and competed in several tournaments across the country.

**Stage III:** Spring 2009 - Present

- Siena College's theater club. Acted in and assisted with many productions

**Piano:** Spring 2008 - Present

- Self-taught

# **Serena N. Moore**

Email: sn29moor@siena.edu

Current Address:  
Siena College SPOB 4414  
515 Loudon Road  
Loudonville, NY 12211

Permanent Address:  
31 Concord St.  
Rochester, NY 14605

## **EDUCATION**

**Siena College**, Loudonville, NY  
B.S. in Computer Science, May 2012

## **CS EXPERIENCE**

*Volunteer Work in Siena Athletics Office*, Loudonville, N.Y Summer 2011

- Worked with Adobe Photoshop for image editing
- Uploaded photos onto Siena website for sport teams

## **COMPUTER & PROGRAMMING SKILLS**

**Applications:** Microsoft Word 2007, Adobe Photoshop CS3, BlueJ, VMware Player, Emacs, Alice, Linux, Excel, Adobe Flash, PowerPoint

**Languages:** Java, C++, x86 Assembly Language

## **ADDITIONAL LEADERSHIP EXPERIENCE**

*Software Engineering Team Co Leader*, **Siena College**, Loudonville, N.Y., Fall 2011

- Helped delegated work to team members
- Stepped in when team leader was unable to attend meetings.

*Siena Girls' Basketball Evening Camp Counselor*, **Siena College**, Loudonville, N.Y., Summer 2009, 2010, 2011

- Team coach – led a group in activities and workouts
- Station leader – taught and explained specific skills to groups

*Siena Mens' Basketball Evening Camp Counselor*, **Siena College**, Loudonville, N.Y., Summer 2011

- Helped with organizing paperwork
- Addressed concerns and helped with communication with parents

*Siena Mens' Lacrosse Day Camp Counselor*, **Siena College**, Loudonville, N.Y., Summer 2011

- Helped with directions and organization –daily activities, and scheduling

## **EXTRACURRICULAR ACTIVITIES**

**Collegiate Division I Women's Basketball**, 2007 – Present

## **COMMUNITY ACTIVITIES**

*Cooked and Served Dinner*, **Ronald McDonald House of Charities**, Fall 2007-2009

*Cancer Walk*, **The American Cancer Society**, Fall 2007-2010

# Nydia Negrón

900 Rock City Rd 91A • Ballston Spa, NY 12020 • (518)885-0567 • nydianegrón@gmail.com

## Objective

- To obtain a career in computer programming or research to help customers in their computer needs.

## Education

Siena College – Loudonville, NY

Bachelors of Arts Mathematics

05/2011

Bachelors of Science Computer Science

05/2012

GPA 3.49; Mathematics 3.47; Computer Science 3.77

## Computer Skills

- Experience with SQL, Java, and Microsoft Visual Basic programming languages.
- Proficient in Microsoft Word and PowerPoint.
- Experience operating a Unix Operating System and Assembly Language.
- Proficient in either Macintosh or Windows computer systems.

## Relevant Coursework

- **Mathematics:** Calculus 1, 2, and 3; Foundations of Mathematics 1, 2, and 3; Linear Algebra; Introduction to Modern Algebra; Mathematical Analysis; Discrete Structures 1 and 2; Euclidean and Non-Euclidean Geometry; Probability for Statistics
- **Computer Science:** Introduction to Computer Science, Introduction to Programming, Data Structures, Assembly Language and Computer Architecture, Objected-Oriented Design and Programming, Data Base Management, Discrete Structures 1 and 2, Software Engineering

## Work Experience

### **Shaker High School**

03/2011 – 05/2011

- Student teacher, Geometry
  - Create and teach lessons
  - Supervise students
  - Work cooperatively with administration, teachers, and staff

### **Siena College Annual Fund**

09/2007 -12/2010

- Administrative Assistant-
  - Research and data entry
  - Solicitation of donations from alumni and friends of the college
  - Event presentation and customization

### **Siena College**

05/2009-07/2009

- Summer Research
  - Worked closely with mathematics professor on a research project
  - Discovered a way to find the greatest common divisor of polynomials and exponential sequences
  - Oral and written presentations regarding completed research

## Professional Development

- Siena Leadership Conference 11/2009
- Hudson Mohawk Mathematics Teacher Conference 03/2010
- Mid-Hudson Mathematics Conference 10/2009
  - as one of the undergraduate student speakers
- Association of Mathematic Teachers of NYS Conference 11/2010

## Campus Involvement

- Black and Latino Student Union
  - President 2010-2011
  - Events Programming Coordinator 2009-2010
- Siena College Ambassador Club 01/2008-05/2010
- Latinos Unificando Nuestra America 2008-2009
  - Historian
- Association of Mathematics Teachers in New York State
- National Council of Teachers of Mathematics
- Special Olympics Aquatics for the Ballston Sparklers (Coach)

# Michael S. Tanski

40 Cramond Street Colonie, New York 12205

(518) 470-7430

## QUALIFICATIONS

- Experienced in all aspects of small business operations and customer service.
- Proficient in computer software applications including Microsoft Office, Web Application Development (Php, HTML with CSS, Java Script); Database Management (SQL); Programming (Java, C++).
- Excellent oral and written communication and time management skills.
- Able to effectively work with people from all backgrounds and educational levels.
- Strong desire to complete tasks in a timely manner and willingness to exceed program goals.

## EDUCATION

**Siena College**, Loudonville, New York

**Computer Science/Multi Media**, Anticipated Graduation May 2012

**Christian Brothers Academy**, Albany, New York

**Honors Diploma**, May 2008

## PROFESSIONAL EMPLOYMENT

**Pine Grove Computer Services**, Albany, New York

2007 – Present

**Owner/President** - Pine Grove Computer Services is a computer company that offers a wide range of services and consultations utilizing cutting-edge equipment and software. Services offered include computer forensics (local, state and federal) and data security and recovery.

## ACADEMIC APPOINTMENTS

Research Assistant

Siena College

2009 – Present

Assistant to the Director of Instructional Technology

Siena College

2008 – 2009

## PUBLICATIONS

Cotler, Del Belso, Paul, Tanski, (2011), "Beyond the Suit and Resume"

To be published in the *Career Development Quarterly (CDQ)*, the official journal of the National Career Development Association (NCDA).

Tanski (2010) "Educational Innovation in the Virtual World of Second Life". Consortium for Computing Sciences in Colleges Northeastern Region (CCSCNE), Hartford, CT.

## PROFESSIONAL DEVELOPMENT

**SYNERGISTIC ACTIVITIES**, Siena College, Loudonville, New York

2009 – Present

**Online Reputation Research.** Performed in depth research on the correlations between online reputation (Facebook, Twitter, Google+, etc.) and employability. Presented research findings at the NCDA international conference in San Antonio, Texas in 2011.

2010 – 2011

**Course Development and Teaching.** EDUC 310 Special Topics in Education: Development of Virtual Learning Environments.

2009 – 2011

**Virtual Siena Project.** Interdisciplinary program sponsored by Academic Affairs, the School of Science, and the School of Liberal Arts. Focus: To develop innovative virtual teaching and learning environments to enhance instruction across the college.

2009 – 2011

Assisted in the development of computer-mediated collaborative communication credit-courses to senior staff at Siena as well as faculty and students

## **Appendix B:**

### **Glossary of Terms**

**C++** - (Pronounced "C Plus Plus) is a compiled general-purpose programming language regarded as a middle-level language.

**Classic Waterfall Model**- A basic software development strategy that clearly labels each phase of the software engineering process. The strategy follows consecutively the following steps: Requirements Specification, Design, Construction, Verification, and Maintenance.

**CSS** - (Cascading Style Sheets) are used to describe a specific style for a web page or set of pages.

**Gantt Chart** – A type of bar chart that illustrates a project schedule. This chart illustrates the start and finish dates of the terminal elements and summary elements of a project.

**HTML** - (HyperText Markup Language) is a scripting language used to design the structural layout of a website.

**IAT** - (Implicit Association Test) measures within a social psychology design to detect the strength of a person's automatic association between mental representations of objects (concepts) in memory.

**JavaScript** - An object-oriented scripting language used to enable programmatic access to objects within both the client application and other applications.

**MySQL** - An open source relational database management system.

**PHP** - (PHP Hypertext Preprocessor) a widely-use general-purpose scripting language that is especially well-suited for web development and can be embedded into HTML.

**XHTML** – (Extensible Hypertext Markup Language) is a reformation of HTML as an XML application.

**XML**- ( Extensible Markup Language) A set of rules for encoding documents electronically.