Sherif A. Tolba

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Professional Highlights

- 5 years of object-oriented programming experience in Java
- 6 years of web application development experience using technologies like PHP, Ruby on Rails, MySQL, PostgreSQL, MongoDB, JavaScript, HTML, and CSS
- First author of seven IEEE papers and a total of 15 publications/articles
- Developed decentralized algorithms for global and local spatial target search, vehicle reorientation, and task allocation for swarm robotics
- Built a 3D simulator in Java for underwater swarm robotics with more than 20,000 lines of source code
- Designed and implemented MiniBrain: a brain-inspired model for agent learning and cognition in robotic swarms
- Collaboratively designed and implemented a secret-sharing system for vault unlocking using the TI eZ430-Chronos Development Watch
- Designed, implemented, and analyzed an indoor personal-item localization framework using active RFID, K-nearest-neighbor (KNN) classification, and 3D interpolation
- Collaboratively designed, implemented, and analyzed a remote home monitoring system leveraging a WSN, active RFID, Wi-Fi, robotics, and the Web
- Led projects that resulted in complete system designs and implementations, and others that yielded publications in reputable engineering societies
- Built strong professional connections with more than 30 individuals during my work at UITS through effective communication

Education

University of Connecticut, Storrs, CT

PhD, Computer Science & Engineering, 4.0/4.0, August 2016

Research: Designed decentralized self-organization, search, and task allocation algorithms, a mission-planning framework, and built a Java simulator

Relevant Coursework: Ubiquitous Computing, Underwater Sensor Networks, Information & Data Security, Advanced Computer Networks, Experiential Entrepreneurship

MSc, Computer Science & Engineering, 3.95/4.0, 2011

Research: Devised computational methods for WSN deployment and attacker-defender modeling in transportation networks

Relevant Coursework: Wireless Sensor Networks, Image Processing, Computer Architecture, Software Performance Engineering, Software Reliability Engineering, Advanced Sequential & Parallel Algorithms

Mansoura University, Mansoura, Dakahlia, EG

BSc, Electronics & Communications, 3.20/4.0, 2007

Senior Design Project: Built a web portal for managing and configuring Asterisk PBX VoIP System

Relevant Coursework: Circuits Theory, Electronics Circuits, Electric Power Systems, Basic Electronics, Electronic Circuits II, III, Solid-state Electronics, Measurements, Electronic Tests I-IV, Electronic Measurements, Electric Machines, Integrated Circuits, Communication Theory I & II, Wireless Communications, Communication Systems, Linear Systems and Networks, Digital Signal Processing, Electromagnetic Fields I & II, Analysis of Wave Propagation, Wave Shaping and Generation, Logic Circuits Design, Automatic Control, Microprocessors

Work Experience

Full Stack Web Developer (November 2016 – present), Modo Labs, Inc., Cambridge, MA

- Building applications in Laravel and Ruby on Rails
- Writing and running specs (unit and feature tests) for these applications
- Integrating dependency management tool with admin interface and building a user interface for it
- Contributing to the design and execution of an integrity checks system
- Writing migration code in PHP for system upgrades

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- Writing state checks for different system components
- Making framework configuration changes in YAML files
- Writing PHP code to add new functionality to the Kurogo framework
- Debugging, writing test plans, and performing QA testing
- Building apps using Kurogo framework
- Implementing an improved filtering system for our Analytics tool: Analyze
- Adding new analytics reports to our internal ops reports tool
- Integrating Carnegie Classifications data into internal Salesforce connector tool
- Redesigning Datatable objects for better testability and reuse across products
- Improving the UI for our build product to serve flash banners on modals
- Accessibility improvements and testing using screen readers and different browsers

Web Application Developer (June 2012 – May 2016), University Information Technology Services (UITS), University of Connecticut, Storrs, CT

Development

- Developed custom web applications both front-end and back-end
- Used well-known application development frameworks like Codeigniter and CMS's/site builders like WordPress

Documentation

- Extensively documented apps (technical documentation and user guides) and automated testing processes

Testing and Maintenance

- Tested the developed applications and suggested improvements
- Maintained, performed troubleshooting, upgraded, extended, and documented numerous UCONN web applications (more than 15 apps at different levels of detail)
- Performed regression testing on multiple applications and implemented an automated testing process for Facility Management Information System (FAMIS) using Oracle Application Testing Suite, a custom Java tool, and a data-driven PHP report generator

Code Versioning

- Used SVN and Git for code version and revision (also used Stash, SourceTree, Jira, and Confluence) and provided documentation for internal use

Upgrades

- Assisted extensively in app migrations between different servers and post-migration testing, verification, and troubleshooting

Databases

- Used DDL to build MySQL databases and DML to transact with them

Web Services

- Built features into some of the apps to provide feeds (in XML and JSON formats) to Oracle web services and provided means for communication with these WS to get content from their content stores

Frameworks

- Made modifications to the functionality and options of a WordPress (slideshow) plugin
- Created a WordPress widget (UConn Alumni Events) using WordPress Widgets API

Custom Apps

- Designed User Interfaces and complete front- and back-end administration systems/interfaces

Client Support

- Effectively communicated with users to collect requirements, address concerns, and provide support

Design

- Renovated website designs (e.g. K-9: canine) and made numerous style improvements (using CSS and JavaScript) to multiple apps
- Used Adobe Flash Professional and Photoshop to create animations and design graphics for some

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applications (e.g. police website and UCAELI)

Research assistant (Feb. 2011 – May 2012), CSE Department, University of Connecticut, Storrs, CT

- Conducted research in transportation network security and sensor network deployment, developed mathematical models and Java simulations, proposed new ideas, implemented them, and published papers

Teaching assistant (Sept. 2009 – Jan. 2011), CSE Department, University of Connecticut, Storrs, CT

- Held lab sessions and office hours to assist students, assisted instructor in homework and lab notes design, and graded homework and exams.

Web Developer and Designer (Summer 2010), University of Connecticut American English Language Institute (UCAELI), University of Connecticut, Storrs, CT

- Maintained the website, managed MySQL database, implemented code changes (in PHP, JavaScript, HTML, CSS), suggested website improvements, and designed graphics for the site

Teaching assistant (Sept. 2007 – June 2009), ECE Department, British University in Egypt (BUE), Cairo, EG

- Held lab sessions and office hours to assist students, assisted instructor in homework and lab notes design, graded homework and exams, prepared course files, and advised students

Relevant Technical Skills

Programming Languages

Proficient: Java (4 years), Ruby (>1 year), PHP (5 years), JavaScript (4 years), Learning: C++

Electronics, Sensors, and Robotics

- Z1 motes (Zolertia) and MICA2 (Crossbow)
- ZR-USB RFID reader and ZT-50 tags (TagSense Inc.)
- RF Code's M200 active RFID reader and tags
- Single-board PCs like BeagleBone Black (BBB) [recently started], and PIC microcontroller
- Electronic circuits implementation & layout design (Eagle)
- Contiki (http://www.contiki-os.org/) and TinyOS
- Built a small autonomous robot using an Arduino board and a simple move-sense-reorient FSM
- Built a remotely-operated robot (through WiFi) using BBB, BoneScript, and other technologies
- Built a mechanical elevation change system using Actobotics structural components, a BBB, and ROS

Web Technologies, Programs, and Concepts

Ruby on Rails, Laravel, PHP, MySQL, MongoDB, PostgreSQL, Oracle databases, Apache (setup and configuration), HTML, XML, JSON, CSS, DOM, JavaScript, jQuery, MooTools, AJAX, Dreamweaver, NetBeans, Eclipse, Adobe Flash Professional, WAMP server, Photoshop, CodeIgniter, code version and revision control (SVN and Git), agile software development, Stash, Jira, Confluence, Tower, SourceTree, GitKraken, Sublime, Slack, CodeClimate, CircleCI, Jenkins, YAML

Sample works: https://sheriftolba.com/, http://k9-olympics.police.uconn.edu/, https://log.sheriftolba.com/, http://www.iccabs.org/2012/

Operating Systems

Proficient: Windows, Mac OS, Comfortable: Ubuntu Linux

Other Tools

VMware, MS Office, Visio, Latex, Cygwin, jMonkeyEngine, GeoTools, QuantumGIS, and many more

Online Presence

Personal Website: https://sheriftolba.com/
LinkedIn: www.linkedin.com/in/sheriftolba
GitHub: https://github.com/aghilmort/swim
Google Scholar: https://scholar.google.com/citations?user=6-bhlxkAAAAJ&hl=en&oi=ao