CV of Md Omar Faruque Sarker

Md Omar Faruque Sarker
168 Barking Road, London, E6 3BD
United Kingdom
Email: writefaruq@gmail.com
Web: http://www.drfs.info

EMPLOYMENT DETAILS

12/2011 – Present: *Software Consultant (Python Development)*
Tesco, Plc London, UK
http://www.tesco.com

- Responsibilities: Re-build Tesco's supplier audit system Tetrs (tetrs.org.uk/) in Python/Django
- Tools/Skills: Python, Django, Piston, jQuery, CoffeeScript, JSON CSS(SASS), MySQL, SCRUM/Agile, TDD, Git, JavaScriptMVC.
- Experiences: Re-designing the Django back-end and continuously integrating with jQuery plug-in DataTable based front-end under a RESTful API.

06/2011 – 09/2011: *Sr. Software Developer (BOX Solutions Team)*
TBG Digital, London, UK
http://www.tbgdigital.com

- Responsibilities: Develop and maintain TBG's commercial Facebook advertising platform called One-Media-Manager (www.onemediamanager.com)
- Tools/Skills: Python, Django, Django pluggable apps: Celery, South, Piston, JavaScript, JSON CSS, PostGRE SQL, Redmine, SCRUM/Agile, TDD, Git, Fabric, RabbitMQ.
- Experiences: Designed and developed the Django back-end of an automatic optimization of One-Media-Manager and integrated with Ext-JS JavaScript front-end framework under a RESTful architecture.

04/2011 – 06/2011: *Developer (Python E-Commerce Team)*
Tangent Labs. London, UK
http://www.tangentlabs.co.uk

- Responsibilities: Develop a Python/Django based applications for a bespoke e-commerce platform django-oscar, Maintain and bug fixes Firebrand e-commerce back-end written in Django. Assist in developing a e-commerce platform for TATA-Landmark (India).
- Tools/Skills: Python/Django, SQLAlchemy, Git, MySQL, ActiveMQ, PHP.
- Experiences: Developed a Django based product review app for django-oscar. Bug fixed and refactored Firebrand backend, Implemented some Quiksilver PHP APIs in Python.

01/2011 – 04/2011: *Principal Consultant (Web & E-Commerce)*
ITXL London Ltd. London, UK
http://www.itxll.com

- Responsibilities: Supervise and lead the development of secure web applications and e-commerce application software
- Tools/Skills: Python/Django Model-View-Controller frameworks and Redmine project management tool
- Experiences: Designed and developed a Django based CMS and a custom shopping search engine using Google's shopping API

02/2011 – 05/2011: *Lecturer* in *Computing (Part-time)*
London School of Commerce & IT, London, UK
http://www.lsci.org.uk

- Responsibilities: Teach Higher National Diploma Computing courses: I) E-commerce Technologies II) IT Security Management.
- Knowledge/Skills: IT security management principles and tools, E-commerce infrastructure, tools and technologies e.g. Django/ Satchmo e-commerce framework .

10/2007 - 12/2010 *PhD Student/ Research Assistant*
Cognitive Robotics Research Centre, University of Wales, Newport, UK
http://crrc.newport.ac.uk

- Responsibilities: Set-up a large multi-robot system and develop software framework to validate an interdisciplinary model of division of labour under the collaborative EPSRC project

"Defying the Rules -How Self -Organizing Systems Work" (EP/E061982/1).

- Knowledge/skills: Bluetooth/Wifi Networking, mobile robotics, computer vision and multi-agent systems. Object-oriented programming in C/C++, Python, Unix shell scripts, LaTeX, Git (revision control system), OpenCV (computer vision library), SwisTrack (blob tracker), Epuck, Myro and Player/Stage robot control frameworks, NetLogo simulator, D-Bus inter-process communication technology.
- Experiences: Specialized in multi-robot and multi-agent systems by developing bio-inspired control algorithms and software frameworks for multi-robot control, communication and real-time position tracking.

05/2010 - 08/2010 *Summer-of-code Student (Part-time)*
Google Open Source Programs, Google Inc. USA
http://socghop.appspot.com

- Responsibilities: Contribute code for Tahoe-LAFS open-source project to extend Tahoe-LAFS P2P file system by adding a multiple introduction scheme.
- Knowledge/skills: Distributed file system, test-driven development, Python, Darcs version management system, Twisted/Nevow web-server frameworks
- Experiences: Designed, developed, tested and documented the community demanded fault-tolerant multiple-introducer scheme (ticket #68). Applied test-driven development (TDD) strategies for code development.

05/2009 - 08/2009 *Summer-of-code Student (Part-time)*
Google Open Source Programs, Google Inc. USA
http://socghop.appspot.com

- Responsibilities: Assist BlueZ open-source project to validate the suitability of integrating short-range wireless NFC technology with existing BlueZ code.
- Knowledge/skills: C, Bluetooth specification version 2.1 EDR, 2D DataMatrix library (libdmtx), Git version management system.
- Experiences: Tested feasibility of a user-friendly one-step Linux Bluetooth setup wizard

08/2005 - 07/2007 *Postgraduate Research Assistant/ Visiting Research Scientist,*
Center for Cognitive Robotics Research
Korea Institute of Science & Technology, South Korea
http:// humanoid.kist.re.kr

- Responsibilities: Develop an intelligent network security system for humanoid robots and a suitable Linux-based real-time humanoid control system.
- Knowledge/skills: Unix BASH shell, SQL, CORAL, CLIPS, C, Linux Netfilter IPTables, CORAL deductive database, Fuzzy inference system, MySQL, Real-time OS, IEEE 1394 bus system.
- Experiences: A knowledge-based security architecture was implemented and simulated. Developed and evaluated a Linux/Xenomai humanoid control system with customized IEEE 1394 device driver for Linux.

EDUCATION

- **Ph.D. Robotics (Multi-robot system)**
  University of Wales, Newport, UK, 2010
  Thesis: Self-regulated Multi-robot Task Allocation
- **M.Eng. HCI & Robotics**
  Korea Institute of Science & Technology, South Korea, 2007
  Thesis: A Knowledge-Based Service Approach for Human-Centered Robots
  Graduate courses: Human Machine Interaction, Intelligent Control, Mobile Robotics, Computer Vision, AI Techniques and Information Security. CGPA: 4.18/4.5.
- **B.Sc. Mechanical Engineering**
  Bangladesh University of Engineering and Technology, 2005

AWARDS

- 10/2010 – 12/2010 *University of Wales, Newport, UK Research Support Grant*
- 10/2007 - 09/2010 *EPSRC, UK PhD Studentship (Grant ref. EP/E061982/1)*
- 05/2010 - 08/2010 *Google Summer of Code Open-source development for Tahoe-LAFS*
- 05/2009 - 08/2009 *Google Summer of Code Open-source development Sponsorship for Bluez*
- 09/2005 - 08/2007 *Korea Institute of Science & Technology - Postgraduate Scholarship*
- 07/2000 - 06/2004 *Bangladesh Uni of Engineering & Technology Technical Scholarship*

MEMBERSHIP

- **BCS** *The Chartered Institute for IT (http://www.bcs.org/)*
- **ACM** *Association for Computing Machinery (http://www.acm.org/)*

TECHNICAL SKILLS/TOOLS

- Programming/Scripting Languages: Python, C/C++, JavaScript, jQuery, CSS, Unix shell scripts, HTML/XML.
- Tools/Frameworks: Python-Django, JavaScriptMVC, Git revision control system, OpenCV computer vision library, SwisTrack multi-robot tracker, Epuck, popular Unix/Linux network servers Apache, MySQL, PostgreSQL, RabbitMQ
- Familiar: Prolog, Java, PHP, MATLAB, Tcl/Tk, MySQL, TCP/IP.

COMPLETED SOFTWARE DEVELOPMENT PROJECTS

PhD Research Projects (source code available from http://github.com/roboshepherd)
[1] Project title: E-puck Robot's Centralized and Distributed Controller Development
Tools/Skills: Python, C/C++, DBus, Git (version control system)
Achievements: Developed the task achieving behaviours of the e-puck robot (navigation, obstacle avoidance and homing) and integrated with SwisTrack tracker.
[2] Project title: SwisTrack Multi-robot Tracker's Prosilica GigE Camera Driver and DBus Wrapper Development
Tools/Skills: C++, Python, Git, OpenCV (computer vision library)
Achievements: Developed GigE camera driver using Prosilica's Linux-SDK and OpenCV. Implemented SwisTrack's DBus server component for broadcasting position information to robot controllers.

Google Summer-of-Code Projects (http://socghop.appspot.com)
[3] 2010 Project title: A Publish/Subscribe Style Decentralized Introduction
Organization: Tahoe-LAFS (http://tahoe-lafs.org/trac/tahoe-lafs/ticket/68)
Tools/Skills: Python, Twisted/Nevow (web framework), Mock (testing), Darcs (version control system)
Achievements: Designed, developed, tested and documented the community demanded fault-tolerant multiple-introducer scheme (ticket #68).

[4] 2009 Project title: A One-Step Bluetooth Device Setup Wizard Using 2D Data-matrix symbol
Organization: BlueZ (http://www.bluez.org)
Tools/Skills: C, Bluetooth specification version 2.1 EDR, 2D DataMatrix library (libdmtx), Git
Achievements: Tested the feasibility developing a user-friendly one-step setup wizard and integrating short-range wireless NFC technology with Bluez's Linux-Bluetooth-stack.

Masters Research Projects (http://humanoid.kist.re.kr/new/eng/)
[5] Project title: Application Development for Human-Centered Service Robots
Tools/Skills: C++/Java, Prolog, and XML, Java-Player client library, XSB deductive database, XML-RPC, Evolution Robotics SDK, Wxwidget Library, Boost C++ Multi-thread library
Achievements: Designed and developed Knowledge-based services and implemented two scenarios in an office and a hospital environment in Player/Stage mobile robot simulator.

[6] Project title: Intelligent Network Security System for Robots
Tools/Skills: Unix BASH shell, SQL, CORAL, CLIPS, C, Linux Netfilter IPTables, CORAL deductive database, Fuzzy inference system, MySQL
Achievements: A knowledge-based security architecture was implemented and simulated.

[7] Project title: Real-Time Robot Control
Tools/Skills: C, Linux/Xenomai RTOS, UML, Source-code-navigator
Achievements: Customized real-time IEEE 1394 device-driver in Linux for humanoid robot control.

Masters Course Projects
[8] Project title: Image Feature Extraction and Mobile Robot Path Planning
Tools/Skills: MATLAB, Least square techniques, Hough transform, Gradient method
Achievements: Applied weighted and non-weighted least-square techniques, Hough transform for efficient line extraction. Implemented the gradient method for mobile robot path planning with wave-front propagation algorithm.

[9] Project title: Application Development for Intelligent LEGO Home
Tools/Skills: Java, Knowledge-engineering tool Protege, CLIPS inference engine, and Intel UPnP authoring tools.
Achievements: Developed the inference engine, a Java client to Protege and several UPnP devices.

[10] Project title: Human Face Recognition
Tools/Skills: C/C++, Tcl/Tk, Statistical histogram algorithm
Achievements: Developed an algorithm for converting colour info from RGB to HSV colour space that made the face detection more robust in varying illuminations.

PUBLICATIONS

Book Chapters

[1] Sarker M. O. F. and Dahl T. S. A Robotic Validation of the Attractive Field Model: An Inter-disciplinary Model of Self-regulatory Social Systems. Swarm Intelligence, Lecture Notes in Computer Science , 6234:24–35, 2010.

[2] Sarker M. O. F. Kim C. Sadi M. G. and You. B-J. Developing Knowledge-Based Security-Sense of Networked Intelligent Robots. Lecture Notes in Computer Science , 4251:874–881, 2006.

Conference Papers

[3] Sarker, M. O. F. and Dahl, T. S. Flexible Communication in Multi-robotic Control System Using HEAD: Hybrid Event-driven Architecture on D-Bus. In Proc. of the UKACC International Conference on Control, CONTROL 2010, Coventry, UK , pages 926–931, September 7-10, 2010.

[4] Sarker M. O. F. and Dahl T. S. Communication strategies for self-regulated division of labour in robot society. In Proceedings of the 2009 European Conference on Complex Systems (ECCS'09), Warwick, UK , pages 157–158, September 21-25, 2009.

[5] Sarker M. O. F. Park, J-M. Kim C. and You. B-J. A Knowledge-Based Service Approach for Human-Centered Robots. In In Proc of the 16th IEEE International Symposium on Robot and Human interactive Communication, 2007. RO-MAN 2007 , pages 582–587, 2007.

[6] Sarker M. O. F. Kim C. Baek S. and You. B-J. An IEEE-1394 Based Real-time Robot Control System for Efficient Controlling of Humanoids. In In Proc of the 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems IROS 2006 , pages 1416–1421, 2006.

[7] Sarker M. O. F. Kim C. Cho J-S. and You. B-J. Development of a Network-based Real-Time Robot Control System over IEEE 1394: Using Open Source Software Platform. In In Proc of the IEEE International Conference on Mechatronics, ICM 2006 , pages 563–568, 2006.

Technical Report and Thesis

[8] Sarker, Md Omar Faruque. Self-regulated Multi-robot Task-allocation. PhD Thesis. University of Wales, Newport, UK, December 2010.

[9] Sarker, Md Omar Faruque. Emergent Self-regulation in Social Robotic Systems. Technical report, University of Wales, Newport, UK, November 2008. Submitted as PhD Transfer Report .

[10] Sarker, Md Omar Faruque. A Knowledge-Based Service Approach for Human-Centered Robots. Technical report, University of Science and Technology, South Korea, August 2007.

Submitted/Accepted for Publication

[11] Sarker M. O. F. and Dahl T. S. Bio-inspired Communication for Self-regulated Multi-robot Sytems. Accepted for publication in Multi-Robot Systems, Trends and Development, ISBN 978-953-7619-X-X, 2010.

[12] Sarker M. O. F. and Dahl T. S. Self-regulated Multi-robot Task Allocation: A Taxonomy and Comparison of Centralized and Local Communication Strategies. In submission to Elsevier Robotics and Autonomous System , 2010.

In Preparation

[13] Sarker M. O. F. Managing Background Tasks for Web Applications: Python/Django meets Celery. In preparation 2011.