DANIEL STONIER

Technology/Solutions Developer

October 2014

PROFILE

Contact Details

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Relevant Links

LinkedIn
Github
Blog - Yujin Robot

I enjoy solving problems that reside in the space where algorithms, programming and technology converge on the real world. The reward of watching technology come alive has had a great part in motivating the direction of my career towards a better understanding of how to make this happen. From a mathematics PhD to company as an algorithms developer, control engineer, software architect and product manager, these have all contributed to understanding a significant part of the pipeline involved in the development of technology solutions. This has more recently has allowed me to take part in shaping an environment to grow small teams tasked with the design and development of new products and technology solutions. My role is more specifically suited to that of a lead developer with enough experience (and a significant interest) in product and business development to be able to participate in the bigger picture.

RELEVANT EXPERIENCE

Yujin Robot Co. Ltd (Seoul, Korea)

Innovation Team Co-Leader   2014-

Preparation - formed a proposal and iterated with company executives a restructured plan for Yujin's 'new' R&D.
Integration - kickstarted the 'innovation team' within the existing company infrastructure as a spin along.
Human Resources - hiring for a varied team (hardware, software, business, korean & international) of ~10 people.
Business Ideation - work with a bizdev & product manager to finding new business and product ideas (e.g. gocart).
Network - successfully connected with interested partners internationally and locally (currently under NDA).
Product Prototype - rapid design and build for our partners interested in autonomous logistics (seeing is believing).
Demonstrations - prepared systems for successful shows at client facilities (US - elderly care home, Sweden - hospital).
Algorithms - upgrade Yujin's former cleaning robot vision slam technology for more generic robots.
Control - co-ordinate development and design of the sensing/control systems of the robots.
Software - manage the team's open & closed software, both internal (robotic) and external (ui, remote connectivity).

Kobuki Project Lead   2012-

Goal - a robotics research platform to connect us with the intntl dev. community to stimulate hiring & networking potential.
Successes - several thousand users, increasing sales and thriving groups around spin-off platforms (e.g. turtlebot and qbot).
Product Management - co-ordinate software, hardware, manufacturing and marketing for the product, kobuki.
Business - linked and launched kobuki in association with the turtlebot platform from OSRF.

Lead Developer   2011-13

Lead Roles - co-ordinating and assisting where needed in Yujin's control team of approximately 10 people.
Human Resources - hiring of new international engineers.
New Projects - propose and work with local and international groups on various government funded projects.
Algorithms - experimental design/testing of vision slam systems using nonlinear optimisation.
Robotics in Concert - lead designer for a multirobot-device framework with OSRF, University of Texas et. al.
Software Manager - manage the open and closed source software (direction, development and quality control).
ROS Contributions - design & dev. of fundamental parts of the robot operating system (build, comms, platforms etc).
ROSCon - speaker at the annual ROS conferences.
Academia - panel member for PhD defences both locally and internationally.

Cleaning Robot Product Engineer   2009-10

Goal - work with our partner (Philips) and their management team to bring a vision-based robot to market.
Successes - made it through the Philips project incubation trials (only 10% succeed) and delivered a product to market.
Vision Slam - rebuild an experimental filtering algorithm from academia for vision based navigation with a focus on product.
Stabilisation - ensure the automatic navigation is failure free - i.e. for all robots, all environments and all times of the day.
Quality - worked with the Philips team to ensure market readiness (incl. 4 weeks of testing on site in the Netherlands).

Senior Control Engineer   2007-10

Control Software Management - integrate Yujin's control systems framework with the ROS framework.
Control Software Development - visual servoing, manipulation, embedded systems, path planning, firmware motor systems.

Korean Advanced Institute of Science and Technology [KAIST] (Daejeon, South Korea)

Postdoctoral Fellow (Robot Intelligence Lab)   2005-6

Research Areas - nonlinear control for omni-navigation, postural balance for humanoids and fuzzy path planning.
Mentoring - assisted lab members with theoretical mathematics and mentored two masters (one indian, one korea) students.

General Skills

- **Product Development** - have particpated in various parts of the product pipeline for several projects
  - *GoCart* - prototype robotic platform and business solution for autonomous logistics.
  - *Kobuki* - a mobile research base.
  - *Turtlebot 2* - a mobile research platform and software environment.
  - *iClebo HomeRun* - a vision based cleaning robot developed in co-operation between Yujin & Philips.
- **Bridging Experimental to Product** - taking the new and shiny and incorporating it into product development.
  - *Research* - from academic paper to a level required for a robust product (vision slam for cleaning robots).
  - *Software Quality* - understanding where and how to draw the line between rapid delivery and long term sustainability
  - *Timing* - a good track record in selectively introducing or blocking new technologies which become vindicated later and effectively gave us a head start (Linux, Eigen, ROS, Turtlebot 2, Web Tools...).
- **Communication**
  - *C-Level* - worked with our c-level executives to integrate an 'innovation team' into a korean company.
  - *Inter-Company* - initiated connections with groups at developer and executive level to form valuable partnerships (Willow, OSRF, ScanBox, ...)
  - *Small Teams* - have worked in teams of up to 10 people with very mixed skills and cultures (typical robotics team).
- **Solutions**
  - *Nailing It* - never happy until I nail it, which lets me dig deeper until the solution is found, or a block properly identified.
  - *Decision Making* - having both research and product background makes it easier to make judgement calls on direction.
- **Languages**
  - *English* - native.
  - *Korean* - intermediate, currently living, studying and working in korea (5+years).

Technical Skills

- **C/C+** [*expert*] : mathematical algorithms, qt, library development, lower and higher level control (motor systems, navigation, manipulation), cross-compiling, bare metal embedded, opengl.
- **CMake** [*expert*] - used extensively in cross-platform projects and helped design ROS's catkin build environment.
- **Open Source** [*expert*] - developed, contributed to or co-maintained many open source projects.
- **Issue Tracking & CI** [*expert*] - responsible for company issue tracking/continuous integration systems (e.g. jenkins).
- **Linux** [*expert*] - from creating our company's private embedded distro through to real-time development, kernel building, server administration and even teaching my wife how to use her new shiny ubuntu desktop.
- **SysAdmin** [*intermediate*] - can do sysadmin tasks for a company's needs (e.g. wiki, code services, LAMP, etc).
- **Python** [*intermediate*] - quick scripts, qt user interfaces and framework glue (e.g. rocon).
- **Matlab Programming** [*intermediate*] - used while at university to prototype/simulate ideas.
- **Java/Android** [*beginner*] - java, gradle (e.g. rosjava) and simple android interfaces.
- **Web Programming** [*beginner*] - supervisory experience of javascript, nodjs and other emerging technologies.
- **Document Editing** [*anything*] - latex, markdown, wikis, web presentations.

EDUCATION

University of Queensland (Brisbane, Australia)

Bachelor of Engineering *1991-94,2004*

Electrical Engineering - first class honours.

Hons. Thesis - hardware/software implementation of a robotic vision system.

Bachelor of Science *1991-94*

Mathematics - honours stream.

Deakin University (Melbourne, Australia)

Doctor of Philosophy (Mathematics) *1996-2002*

Cocycle Theory - analysis of attractors in non-autonomous dynamical systems.

Non-Autonomous Stability - extending & integrating cocycle and classical theories.

Numerical Analysis - perturbations of automonous systems to non-autonomous systems.

Central Queensland University (Rockhampton, Australia)

Bachelor of Science (Hons.) *1995*

Mathematics - first class honours.

Hons. Thesis - sliding mode control of robotic manipulators.

Yeppoon State High School (Yeppoon, Australia)

High School Certificate *1986-90*

Junior and Senior Dux *1988,1990*

NON-CURRICULAR INTERESTS

- **Family** - married to a korean with two children, struggling to keep up with their korean!
- **Cycling** - these days just to maintain fitness and enjoy some MTB tours, previously road and track racing.
- **Chess** - whenever I can find an opponent.
- **Squash** - whenever I can find the time!