

LENKA PITONAKOVA

CURRICULUM VITAE

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A research & development contractor with extensive software development experience using the agile development methodology. Specialised in agent-based modelling, big data applications and web development. Innovative, creative and able to quickly understand new concepts.

TECHNICAL SKILLS

- **C++:** ARGoS, OpenGL, GTK, OpenCV, Kinect; **C#, C**
- **Python:** pandas, numpy, scipy, matplotlib, documentation with sphinx, etc.
- **Databases:** PostgreSQL, MySQL
- **Mobile app development:** Google maps API, web-driven content, Bluetooth, data persistence
 - iOS development: Objective-C, Cocoa, OpenGL ES
 - Android development in Java
- **Adobe Flash, Flex:** ActionScript 2 and 3, web-driven content, XML, CSS, animation
- **Java:** Java applets, web services for JBoss and GlassFish
- Web development and graphic design: **PHP** (general, Codeigniter), **HTML** and **CSS**, **JavaScript**, **JQuery**, **Ajax**, **REST**, **OAuth**, Search Engine Optimisation and cross-browser coding
- **Bash scripts**
- Using of **git** (with GitHub and Bitbucket)
- **Test-driven development**
- Good working knowledge of **software design patterns** and **software carpentry** best practises

WORK EXPERIENCE

03/2017 – 02/2018

University of Southampton
& Bristol Robotics
Laboratory (Bristol, UK)

Post-doctoral research fellow

Independent research in the area of Design Patterns for Robot Swarms. Working on measuring information flow and developing algorithm design principles for robot swarm foraging and task allocation, using e-puck robots.

09/2007 – now

Software development contractor

Worked on individual and team projects from the industry and the academia in a variety of languages. Gained experience in the full software development cycle, team management, marketing and in communication with clients.

- Design and development of big-data applications, user behaviour tracking and social media applications, a large-scale PHP-based Content Management System
- Secured funds for and developed an educational 3D game about swarm robotics, The Hive Mind (<http://thehivemindgame.net>)
- Created an open-source python library for plotting, pyCreeper (<http://pycreeper.lenkaspacespace.net>)
- Created an open-source Java framework for agent-based simulations (<http://lenkaspacespace.net/code/java/creeper>)
- Developed a demo for a strategy game Stardust Colonies (<http://stardustcolonies.lenkaspacespace.net>)
- Developed an open-source NXC framework for creating user interfaces on the Lego Mindstorms brick (<http://lenkaspacespace.net/lab/legoMindstorms/nxcUserInteractionLibrary>)
- Developed and published an iPhone shooter game, Alien Strike.

10/2015 – 02/2016
Flowminder Foundation
(Southampton, UK / Geneva, CH)

Data scientist, software developer

Employed as a Python developer with expertise in object-oriented software engineering. Worked on a large-scale application that processed mobile phone data in order to aid disaster response for the United Nations and other relief agencies.

- Developed novel code for big data processing and analysis
- Refactored the existing repository of Python code into an object-oriented application, along with doing code optimisation
- Liaised with international clients about new applications

02/2010 – 07/2011
Edelman Digital (London / Brighton, UK)

Mid-level software developer

Gained a vast amount of technical expertise. Apart from client work, I was responsible for overlooking of R&D projects and technical blogging.

- Acted as a lead iOS developer. Liaised with other developers abroad.
- Created an iOS application framework used in a number of projects within the company
- Developed a C++ Kinect application for gesture recognition

QUALIFICATION

09/2012 – 01/2017
University of Southampton
(Southampton, UK)

PhD Simulation of complex systems / Swarm robotics

A fully funded Doctoral Training Centre programme. My thesis title was “Design Patterns for Robot Swarms”. In my research, I developed a novel way of understanding swarm robot behaviour in terms of information flow and showed how it can be applied for robot behaviour design.

- Published 1 journal paper and 3 conference papers and presented my research in a number of talks (<http://lenkaspacenet.info/publications>)
- Peer-reviewed papers for the ALIFE and IROS conferences
- Gained teaching experience: Teaching and mentoring of Master’s students. Supervised an undergraduate software project. Demonstrated in lab sessions (parallel and embedded programming courses)
- Participated in a number of outreach activities, including organising an international conference, as well as events for the public

10/2009 – 09/2011
University of Sussex
(Brighton, UK)

MSc Evolutionary and adaptive systems - distinction

Courses covered artificial intelligence, genetic algorithms, neural networks and dynamical systems. My thesis was titled “Ultrastable Neuroendocrine Robot Controller” and proposed a novel learning algorithm for a neural network robot controller.

- Published the dissertation work as a journal paper

09/2006 – 06/2009
University of Bedfordshire
(Luton, UK)

BSc Computer Games Development

Courses included games design and development with Java, C++, OpenGL and DirectX. For my dissertation, I developed a C++ strategy game that used fuzzy logic for game unit AI.

- Awarded General Motors Scholarship based on academic achievement.

LANGUAGE SKILLS

Slovak (native speaker), English (advanced), German (beginner)

INTERESTS

Creative writing, drawing, computer games, playing guitar