Jacek Pierzchlewski, Ph.D.

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www: `http://pierzchlewski.com` **blog:** `http://www.speedupcode.com`

Date of birth: 8th October 1984 **Place of birth:** Polczyn Zdroj, Poland
Citizenship: Polish, Australian permanent resident

OBJECTIVE

The most interesting problems and the most promising discoveries can be found where few fields of engineering science meet. I want to work on innovative solutions which require a mix of information technology, electronic engineering, applied mathematics and more. I love mind-challenging problems – the harder, the better.

PROFESSIONAL EXPERIENCE

Software Developer - Freelancer Sep 2016 – Sep 2017

- Server Back-End Developer and Data Scientist.
  Languages used: **Python**, **C++**, **Javascript (Node.js)**, **Golang**, **SQL**.
  Technologies used: **AWS**, **Numpy & Scipy**, **Tensorflow**, **scikit-learn**.

Postdoc Fellow at **Aalborg University** May 2013 – July 2016
Signal and Information Processing Section

Project: "Interference Reduction for Direct Conversion Receiver using Compressed Sensing".

- 1. Software developer for HPC simulations of data recievers.
  Languages used: **Python**, **C++**, **Javascript (Node.js)**.
  Technologies used: **AWS**, **Numpy & Scipy**, **Tensorflow**.
- 2. Software developer responsible for compilers for custom vector processors.
  Languages used: **Haskell**, **Scala**.
- 3. Electronic circuits developer responsible for digital signal processing.
  Technologies used: **Xilinx FPGA and SoC**.

Ph.D. Fellow at **Aalborg University** November 2009 – February 2013
Technology Platforms Section

Main research focus: application of new signal sampling methods in direct conversion 4G data receivers.

Research Assistant at **Poznan University of Technology** October 2007 – September 2009
Chair of Computer Engineering, Faculty of Computing Science and Management

PROFESSIONAL SKILLS

Computer Engineering:

- **Languages**: Python, C, C++ (inc. 14 & 17), Javascript, Golang, Scala, Haskell, Matlab/Octave, R
- **Algorithms**: data science, machine learning, optimization, signal processing
- **Technologies**: HPC (multi-core CPU and GPGPU), Tensorflow, AWS, scikit-learn
- **Other**: Git, Scrum

Electronic engineering:

- **Languages**: VHDL and Verilog HDL-languages,
- **Technologies**: Xilinx FPGA, CPLD and SoC devices, 4G LTE, transceiver design

ACADEMIC EDUCATION

Philosophy Doctor (Ph.D.) in the field of Wireless Communication **May 2013**

Department of Electronic Systems,
Aalborg University, Aalborg, Denmark

THESIS: *Compressed Sensing Methods in Radio Receivers Exposed to Noise and Interference*

Master of Science in the field of Automation and Management **September 2007**
majoring in Reprogrammable Control Systems,

Faculty of Computing Science and Management,
Poznan University of Technology, Poznan, Poland

THESIS: *Structures of Decimation Filters for Sigma-Delta Modulators – Comparable Analysis and Implementation in VHDL*
(realized as Directed Individual Study for students engaged in research)

Bachelor of Science, **Engineer** in the field of Automation and Management **February 2007**
majoring in Reprogrammable Control Systems,

Faculty of Computing Science and Management
Poznan University of Technology, Poznan, Poland

THESIS: *Implementation of Kernel Linux Drivers for FPGA Embedded System*
(5th, 6th and 7th semester realized as Directed Individual Study for students engaged in research)

ADDITIONAL EDUCATION (SELECTION)

- 10/2017, **"Python Design Patterns"**, Tong Qiu, Packt Publishig
- 09/2017, **"Data Mining with Python: Implementing Classification and Regression"**, Saimadhu Polamuri, Packt Publishing
- 06/2017, **"Data Science and Machine Learning with Python - Hands On!"**, Frank Kane, Packt Publishing
- 05/2017, **"Deep Learning with Python"**, Eder Santana, Packt Publishing,
- 06/2014, **"Recent Advances in Networking: Network Virtualization and Software Defined Networking for Cloud Computing"**, tutorial on IEEE SECON 2014 Conference, Singapore
- 07/2012, **"ACACES – 8th International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems"**, Fiuggi, Italy
- 03/2011, **"LMS Invited Lectures on Compressed Sensing"**, Cambridge University, Center for Mathematical Research, Cambridge, UK
- 10/2010, **"5th IEEE Workshop on Adv. Information Processing for Wireless Communication Systems"**, Nokia Copenhagen, Copenhagen, Denmark
- 08/2010, **"Algorithms for Large-Scale Convex Optimization"**, Technical University of Denmark, Department of Informatics and Mathematical Modeling, Copenhagen, Denmark
- 12/2009, **"LTE Tutorial"**, Infineon Technologies (now Intel), Aalborg, Denmark

HONORS

- 2014 Best Poster Award on IEEE SECON 2014 Conference, Singapore, for paper "Compressed Sensing Based Direct Conversion Receiver With Interference Reducing Sampling"
- 2012 Individual Postdoctoral Project Grant from The Danish Council for Independent Research
- 2007 Best Paper Award on MIXDES 2007 Conference, Poland, for paper "CPLD Based Development Board for Mixed Signal Chip Testing"
- 2005 grant of Directed Individual Study for students engaged in research
- 2004–2007 Dean's scholarship for outstanding academic performance

SELECTED PUBLICATIONS

- J. Pierzchlewski, T.Arildsen, **"Bypassing extensive ADC requirements in the presence of interference using compressed sensing"**, *Proc. of 10th European Conference on Antennas and Propagation (EuCAP 2016)*, Davos, Switzerland, apr 2016,
- J. Pierzchlewski, T.Arildsen, **"Generation and Analysis of Constrained Random Sampling Patterns"**, *Circuits, Systems and Signal Processing*, vol 35 (10), pp 3619–3643, oct 2016,
- J. Pierzchlewski, T.Arildsen, **"Frequency-Selective Signal Sensing with Sub-Nyquist Uniform Sampling Scheme"**, *Proc. of 12th Annual IEEE International Conference on Sensing, Communication and Networking (SECON 2015)*, Seattle, USA, jun 2015
- J. Pierzchlewski, T.Arildsen, T. Larsen, **"Compressed Sensing-Based Direct Conversion Receiver with Interference Reducing Sampling Strategy"**, *Proc. of 11th Annual IEEE International Conference on Sensing, Communication and Networking (SECON 2014)*, pp. 188–190, Singapore, jun 2014
- J. Pierzchlewski, T. Larsen, **"LTE Downlink Transmitter Simulation Using MATLAB"**, *Microwave Journal*, vol. 55 (10), pp. 136–143, nov 2012, ISSN 0192-6225
- J. Pierzchlewski, T.Arildsen, T. Larsen, **"Compressed Sensing-Based Direct Conversion Receiver"**, *Proc. of International Symposium on Communication and Information Technologies (ISCIT 2012)*, pp. 804-809, Gold Coast, Australia, oct 2012
- P. Sniatala, J. Pierzchlewski, A. Handkiewicz, **"Current Mode Comparator Design"**, *Electronics - Constructions, Technologies, Applications journal*, vol. 49 (11), nov 2008, pp. 167-169, ISSN 0033-2089
- P. Sniatala, J. Pierzchlewski, A. Handkiewicz, **"CPLD Development Board for Mixed Signal Chip Testing"**, *Proc. of International Conference on Mixed Design of Integrated Circuits and Systems (MIXDES 2007)*, pp. 492–495, Ciechocinek, Poland, jun 2007,
- J. Pierzchlewski, P. Sniatala, B. Nowakowski, A. Rybarczyk, W. Wencel, **"FPGA Chip as a System Master for Hardware Aided Parallel Computing"**, *Proc. of Internationl Symposium on Parallel Computing in Electrical Engineering (PARELEC 2006)*, pp. 220-226, Bialystok, Poland, sep 2006
- M. Szulc, J. Pierzchlewski, A. Rybarczyk, **"Linux as the Operating System for Computational Node of Custom Computing Machine Class System"**, *Proc. of International Conference on Mixed Desing of Integrated Circuits and Systems (MIXDES 2006)*, pp. 728–733, Gdynia, Poland, jun 2006

MEMBERSHIPS

Association for Computing Machinery
IEEE Membership and IEEE Young Professionals
Member of IEEE Societies: Communications, Computer, Signal Processing

LANGUAGES

- Polish - mother tongue
- English - "Very Good User" according to IELTS (8/9 in IELTS overall band score)
- Danish - solid basic skill

HOBBIES

Aviation, History, Travelling, Cars and Motorbikes (full unrestricted license for motorbikes),