

Krzysztof Czarnecki PhD MSc Eng.

Personal Data

- Date and place of birth: **30 July 1985, Rypin, Poland**
- Nationality: **Polish**
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Education and Scientific Degrees

- **Master of Science, Engineer** (November 23, 2009)
in Radiocommunication and Computer Networks
Diploma title: *High speed data transmission in TETRA system*
Faculty of Electronics, Telecommunications and Informatics
Gdansk University of Technology, Gdansk, Poland
- **Doctor of Philosophy** (December 17, 2013)
in Telecommunication (Digital Signal Processing)
Thesis title: *Complex phase gradient of the short-time Fourier transform in spectrography*
Faculty of Electronics, Telecommunications and Informatics
Gdansk University of Technology, Gdansk, Poland

Research Area

- **Signal analysis in the time-frequency domain**
Estimation of signal parameters and representations: instantaneous frequency, group delay, bandwidth, chirp-rate. Also adaptive analysis using directional kernel.
- **Sonar signal analysis and processing**
Including estimation of direction of arrival, distance to a target and its velocity.

Professional Career

- **Center of Sport and Recreation in Gdansk**
2003 – 2006 (seasonally) – lifeguard
- **Medical University of Gdansk, Gdansk, Poland**
Radiological Department of Computer Science and Statistics
2008 III – 2010 IX – technician / network administrator
2010 X – 2011 VII – assistant / academic teacher
- **Gdansk University of Technology, Gdansk, Poland**
Faculty of Electronics, Telecommunications and Informatics (WETI)
2009 IX – 2009 VI – contractor in scientific grant (DSSS signal detection)
2011 IX – 2014 I – lecturer / academic teacher
2014 II – 2015 I – technician / senior specialist
2014 X – 2017 V – technical head of Testing Hydroacoustic Laboratory, accredited by Polish Centre for Accreditation in hydroacoustic measurement (accreditation no. PCA AB1606)
2015 II – 2017 X – assistant professor / academic teacher
- **Intel Technology Poland**
2017 X – now – Software Development Engineer (Continuous Validation)

Internships

- **WB Electronics** (reinforcing company), **Ożarów Mazowiecki near Warsaw**,
2010 VII – IX – industrial internship, realized task: module integration (in C++)
- **Laboratoire de Mécanique et d'Acoustique, CNRS, Marseille, France**,
2012 IV – VII – scientific internship, assistant, supervisor: Prof. Serge Mensah
- **Institut de Recherche en Energie Electrique de Nantes Atlantique, Université de Nantes Saint-Nazaire, France**, May 2016, supervisor: Prof. François Auger

Organizational Activity

- Reviewer in **Mechanical Systems and Signal Processing**, Elsevier (2 reviews)
- Reviewer in **Signal Processing**, Elsevier (3 reviews)
- Reviewer in **Digital Signal Processing**, Elsevier (8 reviews)
- Reviewer in **IEEE Access** (1 review)
- Member of **Polish Acoustical Society** (also in Audit Committee)
- Member of Organizing Committee of **the Symposium on Hydroacoustics**, 3 times: in Jurata, 2015, in Jastrzębia Góra, 2016, in Jastarnia, 2017, all in Poland
- Member of Program Committee of **Federated Conference on Computer Science and Information Systems**, Gdańsk, Poland, 2016

Awards and Grants

- **The best contribution presented in the signal processing session on Congress - Acoustics 2012, Nantes, France** by Societe Francaise d'Acoustique.
- Laureate of "**Innodoktorant - IV edition**" in 2012, by the Pomeranian Regional Government.
- First degree teamwork award of Rector of Gdańsk University of Technology for special scientific achievements in 2014.
- **Award from Department of Academy of Sciences in Gdansk for young scientists for the best scientific article in 2015 in the category of technical sciences** (title of awarded article: "The Instantaneous Frequency Rate Spectrogram" in Mech. Sys. and Sig. Process.).
- 3 Awards from Rector and Dean of Gdańsk University of Technology for teaching, scientific achievements, as well as preparation of Testing Hydroacoustic Laboratory (accredited by Polish Accreditation Centre) in 2015/16.

Most Important Scientific Publications (all about 20)

- **K. Czarnecki**, D. Fouan, Y. Achaoui, S. Mensah, Fast bubble dynamics and sizing, **Journal of Sound and Vibration** [$IF_2=1.813$], vol. 356, pp. 48-60, 2015.
- **K. Czarnecki**, The Instantaneous Frequency Rate Spectrogram, **Mechanical Systems and Signal Processing** [$IF_2=2.256$], vol. 66-67, pp. 361-373, 2016.
- D. Fourer, F. Auger, **K. Czarnecki**, S. Meignen, P. Flandrin, Chirp rate and instantaneous frequency estimation: application to recursive vertical synchrosqueezing, **IEEE Signal Processing Letters** [$IF_2=1.661$], accepted in 2017.
- **K. Czarnecki**, W. Leśniak, Bearing estimation using double frequency reassignment for a linear passive array, **Polish Maritime Research** [$IF_2=0.776$], accepted in 2017.

Teaching Courses

- **Operating systems** (including Bash and Python)
- **Computer simulation of systems** (including Python and MATLAB)
- **Circuits and signals**

Qualifications and Additional Skills

- **Digital Signal Processing** (filtration, interpolation, modulation, transformation, etc.),
- **Programming** (C/C++, MATLAB/Octave, Python, Bash),
- **Markup languages** (XML, YML, HTML, Latex, Gnuplot),
- **Linux Operating System administration** (GNU/Debian),
- **Network issues** (Ethernet, DHCP, DNS, PXE, NAT, HTTP, FTP, SSH),
- **Frameworks** (GTK+, ALSA, Gstreamer),
- **Relational databases** (Sqlite),
- **Revision control systems** (GIT),
- **English language** (intermediate),
- **Driving license** (B cat., not practiced),
- **Lifeguard license** (2nd stage),
- **Motorboat patent** (younger helmsman).

Current Projects and Maintenance

- **Hydroacoustics journal service** (+ SQLite database), <http://pta.eti.pg.gda.pl/journal/>
- **Polish Acoustical Society, Gdansk Department**, service WWW, <http://pta.eti.pg.gda.pl/>
- **ccROJ - Time-Frequency C++ Framework** - an open source project, <https://github.com/dsp-box/ccROJ> and <http://git.eti.pg.gda.pl/ccROJ/> (in review in SoftwareX)

Hobbies

- **Sport** (volleyball, weight training, cycling),
- **Strategy games** (go, chess),
- **Geopolitics.**

On Polish territory:

Wyrażam zgodę na przetwarzanie moich danych osobowych dla potrzeb niezbędnych do realizacji procesu rekrutacji (zgodnie z Ustawą z dnia 29.08.1997 roku o Ochronie Danych Osobowych; tekst jednolity: Dz.U.z 2014r., poz.1182 ze zm.).