

Contact Information	NishiAzabu 4-8-27 Apt #301 Minato-ku, Tokyo-to 106-0031 @ krzysztof.orzel@gmail.com	☎ 070-2832-2622 🔗 github.com/k-orzel in linkedin.com/in/orzelk
Summary Statement	① I am a tenacious engineer. I design radar systems. I built small ones, which fit in your hand, and bigger ones, which ended up on roofs, towers, and trucks. ② I am an open-minded scientist. I create the algorithms to digest the raw data and come up with the answers. ③ I am an advocate of a spatially distributed network of sensors cooperating to detect, track, and classify objects with intelligent node coordination. ④ I am always eager to learn new things and push forward.	
Strengths	<div>microwave engineering</div> <div>weather radar</div> <div>FMCW radar</div> <div>MIMO radar</div> <div>field campaigns</div> <div>Linux</div> <div>tracking</div> <div>detection</div> <div>classification</div> <div>tornado chasing</div> <div>Python</div> <div>MATLAB</div> <div>C,C++</div> <div>bash</div> <div>git</div> <div>docker</div> <div>gpg</div> <div>AWS EC2</div> <div>vpn</div> <div>yubico</div>	
Languages	Polish ●●●●● English ●●●●● German ●●●●● Japanese ●●●●●	
Education	University of Massachusetts	📍 Amherst, USA
	<i>PhD in Electrical & Computer Engineering</i>	Graduation: 8/2014
	Karlsruhe Institute of Technology (KIT)	📍 Karlsruhe, Germany
	<i>Dipl.-Ing. in Electrical Engineering</i>	Graduation: 6/2008
	Gdansk University of Technology	📍 Gdansk, Poland
Professional Experience	<i>M.Sc. in Electronics and Telecommunication Engineering</i>	Graduation: 6/2008
	Arkenets Japan	📍 Tokyo, Japan
	<i>CTO</i>	2/2020 –
	<ul style="list-style-type: none"> Developing software and algorithm solutions for 60 GHz MIMO radar network. 	
	Soumei Consulting	📍 Grudziądz, Poland
	<i>Chief Scientist / Founder</i>	10/2017 – 9/2019
	<ul style="list-style-type: none"> Designed the data quality control pipeline for an FMCW monopulse radar. Implemented the detection and tracking algorithm for an FMCW radar. Providing guidance and technical leadership related to the UMass phase-spin weather-bird-drone radar operations. Published and presented research results. 	
	aps Advanced Protection Systems (APS)	📍 Gdynia, Poland
	<i>Lead Radar Systems Engineer</i>	2/2016 – 1/2018
	<ul style="list-style-type: none"> Key-member of a rapidly growing engineering team (joined company as an employee #4). Transformed a radar sensor prototype into a commercial product within 15 months. Directly involved in the design, testing, and promotion of a multi-sensor counter UAV detection and neutralization system. 	
	UMASS AMHERST University of Massachusetts	📍 Amherst, USA
	Center for Collaborative Adaptive Sensing of Atmosphere (CASA)	
	<i>Post Doctoral Research Associate</i>	10/2014 – 2/2016
	<ul style="list-style-type: none"> Conducted intensive customer discovery for a city-scale weather radar (NSF I-corps program). Established a new research collaboration with Olin College to study radar detection of unmanned aerial vehicles using a phase-spin weather radar. Performed phased-array antenna measurements in anechoic chamber to implement a novel antenna cross-polarization reduction technique. 	
	Microwave Remote Sensing Laboratory (MIRSL)	
	<i>Research Assistant</i>	09/2008 – 09/2014
	<ul style="list-style-type: none"> Designed and assembled an X-band, dual polarized, phase-tilt weather radar (PTWR). 	

- Deployed PTWR in Dallas-Forth Worth radar testbed.
- Developed multi-threaded, real-time data acquisition subsystem and weather radar processor.
- Designed a pulse compression filter, which improves radar sensitivity and range resolution.
- Developed a technique to optimize NLFM waveform design.

Graduate student senator

10/2012 – 9/2013

Field Engineer

4/2009 – 7/2010

- Member of the largest, multi-agency tornado research project in the history ([Vortex 2](#)).
- Provided hardware and software support for X-band and W-band polarimetric radars.
- Performed successful close range radar deployments on multiple tornadic supercells. The Research resulted in the identification of new weather signatures associated with the formation of tornadoes.



German Aerospace Center (DLR)

📍 Oberpfaffenhofen, Germany

Intern Engineer

10/2007 – 5/2008

- MSc thesis on: "Further development of an integrated Ka-band receiver for an aperture synthesis radiometer" within a project on a passive millimeter wave full body scanner for aviation safety and homeland security.
- Improved the quality of the microwave circuit boards fabrication process.

AIRBUS Airbus Defence and Space

📍 Ottobrunn, Germany

Test Engineer

6/2008 – 7/2008

- Supported anechoic chamber tests of a SATCOM-Bw2 satellite (passive intermodulation levels).

Intern Engineer

2/2007 – 7/2007

- Created software tools for design, simulation, optimization and analysis of a waveguide coupler.
- New design method has improved parameters up to 50%.
- Waveguide coupler designed with these tools is installed in a satellite ground base station.



BarcelonaTech (UPC)

Undergraduate Researcher

📍 Barcelona, Spain

Implementation of the PLL frequency synthesizer for a bistatic SAR system.

10/2006 – 1/2007



KIT Karlsruhe Institute of Technology

Undergraduate Researcher

📍 Karlsruhe, Germany

Channel characterization of several urban scenarios using ray-tracing method.

8/2005 – 9/2006

Selected
Awards

NSF I-Corps grant

4/2015

1st place in Umass Innovation Challenge Minute Pitch Competition

4/2014

[Spiros G. Geotis Prize](#), Best Paper Award at AMS 35th Conference on Radar Meteorology

9/2011

Selected
publications

V. Venkatesh, Orzel K., S.Frasier, Spaced-antenna aperture synthesis using an X-band phased-array, *IEEE Geoscience and Remote Sensing Letters*, accepted for publication 3/2020.

Orzel K. and S. J. Frasier, Weather Observation by an Electronically Scanned Dual-Polarization Phase-Tilt Radar, *IEEE Transactions on Geoscience and Remote Sensing*, vol. 56, no. 5, 2018.

Orzel K. and S. J. Frasier, Polarimetric observations by a phase-tilt weather radar in the DFW network, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017.

Orzel K, V. Venkatesh, T.Hartley, S.Frasier, Development and Calibration of a X-band Dual Polarization Phased Array Radar, *IEEE Radar Conference*, 2013.

Tanamachi R., H. Bluestein, M. Xue, W.C. Lee, K. Orzel, S. Frasier, R. Wakimoto, Near-surface vortex structure in a tornado and in a tornado-like vortex observed by a mobile, W-Band radar during VORTEX2, *Monthly Weather Review* 141 (11), 2013

All publications available at: [🔗 k-orzel.github.io/publications](https://k-orzel.github.io/publications)

Journal
Reviewer

IEEE Transactions on Geoscience and Remote Sensing

2014–

AMS Journal of Atmospheric and Oceanic Technology

2016–

Patent

Andrew Bennett and Krzysztof Orzel: *Methods and systems for wet radome attenuation mitigation in phased-array antennae applications and networked use of such applications*. Patent No: US10389019B2, Date of patent: 8/20/2019.