

Dr. Zeeshan Zia

CONTACT INFORMATION	Redmond, WA 98052 United States	<i>Mobile:</i> +1 669 220 8352 <i>Email:</i> zeeshan@retrocausal.ai <i>WWW:</i> www.ZeeshanZia.com
VISA STATUS	US Permanent Resident (EB1-B green card, “Outstanding Professor or Researcher”)	
RESEARCH INTERESTS	Computer Vision, Machine Learning, Robotics	
EDUCATION	Swiss Federal Institute of Technology (ETH-Zurich) , Switzerland	
	Ph.D., Computer Vision and Machine Learning	October 2009 - December 2013
	<ul style="list-style-type: none">• ETH Medal for outstanding dissertation (top 5% of all theses)• Thesis: <i>High-Resolution 3D Layout from a Single View</i>	
	Munich University of Technology (TU-Munich) , Germany	
	M.Sc., Electrical Engineering	October 2007 - September 2009
	<ul style="list-style-type: none">• Passed with Distinction, GPA: 1.4 (1.0 scale)• Thesis: <i>Inside out visual activity analysis based on 3D hand, object, and scene tracking</i>	
	NED University of Engineering and Technology , Pakistan	
	B.Eng., Electronic Engineering	January 2003 - December 2006
	<ul style="list-style-type: none">• 2nd position out of 140 students, GPA: 4.0 (4.0 scale)	
EXPERIENCE	Retrocausal AI , Seattle	
	<i>Founder and CEO</i>	May 2019 -
	Microsoft Corporation , Redmond	
	<i>Senior Scientist (CV/ML for HoloLens and Cloud)</i>	April 2017 - May 2019
	NEC Laboratories America , Cupertino	
	<i>Research Scientist (Autonomous Vehicles)</i>	October 2015 - March 2017
	Imperial College London , UK	
	<i>Post-doctoral Research Associate (Robot Vision)</i>	January 2014 - September 2015
	Qualcomm Research , Austria	
	<i>Visiting Researcher (Mobile Augmented Reality)</i>	May 2013 - August 2013
	Swiss Federal Institute of Technology (ETH-Zurich) , Switzerland	
	<i>Research and Teaching Assistant, Web Master</i>	October 2010 - December 2013
	Darmstadt University of Technology (TU-Darmstadt) , Germany	
	<i>Research Assistant (Computer Vision)</i>	October 2009 - September 2010

Siemens AG, Germany

Consulting Software Engineer (IoT)

August 2008 - October 2008

Munich University of Technology (TU-Munich), Germany

Research Assistant (Computer Vision)

April 2008 - September 2009

Research Assistant (Embedded Systems)

November 2007 - March 2008

NED University of Engineering and Technology, Pakistan

Lecturer (Electronics)

December 2006 - September 2007

Pakistan Space and Upper Atmosphere Research Commission, Pakistan

Engineering Intern (Embedded Systems)

March 2006 - December 2006

Siemens Pakistan Engineering, Pakistan

Engineering Intern (Medical Equipment)

December 2005 - January 2006

AWARDS AND HONORS

During Postdoc

- Offered NTNU Onsager Fellowship as tenure-track associate professor of Robot Vision.
- Additional salary increment in “recognition of quality of my achievements and contribution to the College.”

During PhD studies

- ETH Medal for outstanding dissertation (top 5% of all theses), 2000 CHF prize.
- Best PhD Student award out of 130 pre-screened candidates at ICVSS 2012.
- Qualcomm Innovation Fellowship 2012, worth 10,000 EUR on my project proposal.
- Best Paper Award, for our 3dRR-11 paper by Microsoft Research.
- Best Poster Award, out of 25 fellow PhD students at IGP’s Doctoral Colloquium.

During Master’s studies

- Research assistanceship from CoTeSys research cluster for 15 months (14000 EUR).
- Research assistanceship from Integrated Systems lab for 5 months (3000 EUR).
- Full fee waiver, worth 1500 EUR per semester throughout MSc studies.
- Semester Scholarships, thrice worth 1000 EUR per semester.
- Travel grants for attending week-long technical courses in Portugal and France.

During Bachelor’s studies

- 2nd merit position, overall in 4 years of B.E. program out of 140 students.
- Selected for Siemens Gold Medal as best performing undergraduate student.
- Merit Scholarship for obtaining 1st and 2nd rank in sophomore and junior year.

During High School

- 1st and 2nd prizes at 6 national level software competitions (1998-2001).
- Member of 3-student team Pakistan-1 at International Schools Software Competition (thrice) in Singapore (2000), Philippines (2001), and New Zealand (2002)

PATENTS

- [1] Q.H. Tran, M.E.F. Salem, **M.Z. Zia**, P. Vernaza, M. Chandraker, Dense three-dimensional correspondence estimation with multi-level metric learning and hierarchical matching. *US Patent Application*. Filed 2019 with NEC.
- [2] N. Xu, **M.Z. Zia**, A. Ambardekar, B. Githinji, A. Konin, S.K Tang, H.S. Sawhney, Things as UXs and UXs as Things (Things as a Service). *US Patent Application*. Filed in 2019 with MS.
- [3] H. Coskun, **M.Z. Zia**, F. Bogo, H.S. Sawhney, Low-shot Visual Activity Understanding. *US Patent Application*. Filed in 2019 with MS.

- [4] **M.Z. Zia**, E. Shalev, J. Hanzelka, H.S. Sawhney, P.U. Escos, M. Ebstyn, Generating Synthetic Digital Assets For A Virtual Scene Including A Model Of A Real-World Object. *US Patent Application*. Filed in 2018 with MS.
- [5] **M.Z. Zia**, Q.H. Tran, X. Yu, M. Chandraker, C. Li, Landmark Localization On Objects Using Convolutional Neural Networks. *USPTO GRANTED Patent*. Filed 2017 with NEC.
- [6] **M.Z. Zia**, Q.H. Tran, X. Yu, M. Chandraker, C. Li, Advanced Driver-Assistance System with Landmark Localization on Objects in Images Using Convolutional Neural Networks. *USPTO GRANTED Patent*. Filed 2017 with NEC.
- [7] **M.Z. Zia**, Q.H. Tran, X. Yu, M. Chandraker, C. Li, Surveillance System with Landmark Localization on Objects in Images Using Convolutional Neural Networks. *USPTO GRANTED Patent*. Filed 2017 with NEC.
- [8] **M.Z. Zia**, Q.H. Tran, X. Yu, M. Chandraker, C. Li, Action Recognition System with Landmark Localization on Objects in Images Using Convolutional Neural Networks. *USPTO GRANTED Patent*. Filed 2017 with NEC.
- [9] Q.H. Tran, M.E.F. Salem, **M.Z. Zia**, P. Vernaza, M. Chandraker, Dense Correspondence Estimation with Multi-Level Metric Learning And Hierarchical Matching. *US Patent Application*. Filed 2018 with NEC.
- [10] Q.H. Tran, M.E.F. Salem, **M.Z. Zia**, P. Vernaza, M. Chandraker, Computer Aided Traffic Enforcement Using Dense Correspondence Estimation With Multi-Level Metric Learning And Hierarchical Matching. *US Patent Application*. Filed 2018 with NEC.
- [11] **M.Z. Zia**, E. Maggio, Q. Pan, M. Gervautz, Z. Szalavari, Exemplars-Based Color Classification. *USPTO GRANTED PATENT*. Filed 2014 with Qualcomm.

SELECTED
PUBLICATIONS

Journal Articles: TPAMI and IJCV are the premier journals in artificial intelligence with 5-year impact factors of 6.14 and 4.86, respectively.

- [1] C. Li, **M.Z. Zia**, Q.H. Tran, X. Yu, G. Hager, M. Chandraker, Deep Supervision with Intermediate Concepts. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. 2018.
- [2] **M.Z. Zia**, M. Stark, K. Schindler, Towards Scene Understanding with Detailed 3D Object Representations. *International Journal of Computer Vision (IJCV)*. 2015.
- [3] **M.Z. Zia**, M. Stark, B. Schiele, K. Schindler, Detailed 3D representations for object recognition and modeling. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. November 2013.

Conference Proceedings: CVPR, ICRA, and ECCV are the highest ranked conferences in computer vision and robotics.

- [4] H. Coskun, **M.Z. Zia**, F. Bogo, B. Tekin, N. Navab, F. Tombari, H.S. Sawhney, Towards Universal Representation Learning of First-Person Actions. Submitted 2019.
- [5] M.E.Fathy, Q.H. Tran, **M.Z. Zia**, P. Vernaza, M. Chandraker, Hierarchical Metric Learning and Matching for 2D and 3D Geometric Correspondences. *15th European Conference on Computer Vision (ECCV)*. 2018.
- [6] C. Li, **M.Z. Zia**, Q.H. Tran, X. Yu, G. Hager, M. Chandraker, Deep Supervision with Shape Concepts for Occlusion-Aware 3D Object Parsing. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2017.
- [7] B. Bodin, L. Nardi, **M.Z. Zia**, H. Wagstaff, G.S. Sheenoy et al., Integrating Algorithmic Parameters into Benchmarking and Design Space Exploration in 3D Scene Understanding. *International Conference on Parallel Architectures and Compilation Techniques (PACT)*. 2016.

- [8] **M.Z. Zia**, L. Nardi, A. Jack, E. Vespa, B. Bodin, P. Kelly, A. Davison, Comparative Design Space Exploration of Dense and Semi-dense SLAM. *IEEE International Conference on Robotics and Automation (ICRA)*. 2016.
- [9] F. Chayya, D. Reddy, S. Upadhyay, V. Chari, **M.Z. Zia**, K.M. Krishna, Monocular Reconstruction of Vehicles: Combining SLAM with Shape Priors. *IEEE International Conference on Robotics and Automation (ICRA)*. 2016.
- [10] L. Nardi, B. Bodin, **M.Z. Zia**, A. Nisbet, J. Mawer et al., Introducing SLAMBench, A performance and accuracy benchmarking methodology for SLAM. *IEEE International Conference on Robotics and Automation (ICRA)*. 2015.
- [11] **M.Z. Zia**, M. Stark, K. Schindler, Are Cars Just 3D Boxes? – Jointly Estimating the 3D Shape of Multiple Objects. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2014.
- [12] **M.Z. Zia**, M. Stark, K. Schindler, Explicit Occlusion Modeling for 3D Object Class Representations. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2013.
- [13] **M.Z. Zia**, M. Stark, B. Schiele, K. Schindler, Revisiting 3D geometric models for accurate object shape and pose. *3rd International IEEE Workshop on 3D Representation and Recognition (3dRR/ICCV WS)*. 2011. (MSR Best Paper Award)
- [14] U. Klank, **M.Z. Zia**, and M. Beetz, 3D Model Selection from an Internet Database for Robotic Vision. *IEEE International Conference on Robotics and Automation (ICRA)*. 2009.
- [15] **M.Z. Zia**, U. Klank, and M. Beetz, Acquisition of Dense 3D Model Database for Robotic Vision, *International Conference on Advanced Robotics (ICAR)*. 2009.

STUDENT
(CO-)SUPERVISION
AND MENTORSHIP

- C. Mitash (2018), PhD intern, MSR (Rutgers), GANs for sim-to-real translation
- H. Coskun (2018), PhD intern, MSR (TUM), First-person activity understanding
- M.F. Salem (2016), PhD intern, NEC (UMD), Ground surface modeling w/ deep learning
- Chi Li (2016), PhD intern, NEC (Johns Hopkins), Object reconstruction w/ deep learning
- Falak Chayya (2015), MEngg thesis, IIIT, Combining SLAM with Shape Priors
- Andrew Jack (2015), MSc thesis, ICL, Benchmarking of mobile semi-dense SLAM
- Michele L. Russo (2014-2015), PhD Mentee, TUM, Sensing for the Perception-Action Loop
- John B. McCormac (2014), MSc thesis, ICL, 3D object learning and detection in real-time
- Michele L. Russo (2014), MSc thesis, ICL, Scalable object-class detection by sparse coding
- Unaiza Ahsan (2011), MEng thesis, NEDUET, Multi-cue human detection and tracking
- Fahad Hussain Khan (2011), BEng thesis, NEDUET, Vision based real-time self-localization
- Owais Mehmood (2009), BEng thesis, NEDUET, Pedestrian tracking

PROFESSIONAL
SERVICE

- Associate Editor for International Association for Pattern Recognition, 01/2013-12/2016
- Organizer/Chair for Real-time 3D Scene Understanding in year 2020 (BMVA Workshop)
- Technical Committee member/Reviewer for BMVC 2014, 2015, 2016
- Regularly reviewed for CVPR, ICCV/ECCV, TPAMI, IJCV, ICRA since 2009
- Organizer/volunteer for DAGM 2010

HARDWARE AND
SOFTWARE SKILLS

Programming:
• C, C++(STL,11), Python, Matlab, Caffe/TensorFlow/PyTorch, CUDA

Hardware:

- FPGA, GPU, DSP, Microcontrollers, CrossBow Wireless Sensor modules, PLCs

Miscellaneous:

- Latex, Linux, Hg, Git, SVN, Visual Studio, Eclipse

INVITED TALKS

- National Incubation Center, Karachi in December 2018
- Orbital Insight, Palo Alto in June 2018
- Hacker Dojo (Deep Learning Study Group), Santa Clara in March 2017
- Apple (Deep Learning Group), Cupertino in November 2016
- Microsoft Analog Sciences, Redmond in November 2016
- Norwegian University of Science and Technology (NTNU), Norway in August 2015
- Robotics Science and Systems workshop on future goals for SLAM, Italy in July 2015
- Amazon Development Center, Germany in May 2015
- NEC Research Laboratories, United States in May 2015
- Toyota Research, United States in May 2015
- Toshiba Cambridge Research Laboratory, United Kingdom in January 2015
- University of Bristol, United Kingdom in December 2014
- Imperial College London, United Kingdom in October 2013
- Qualcomm Austria Research Center, Austria in July 2013
- Qualcomm Austria Research Center, Austria in February 2013
- International Computer Vision Summer School (ICVSS), Italy in July 2012
- NED University of Engineering and Technology, Pakistan in July 2010
- Darmstadt University of Technology, Germany in June 2009
- NED University of Engineering and Technology, Pakistan in December 2008