

CURRICULUM VITAE

OF

PROF. DR.-ING. MARWAN YOUNIS

PERSONAL DATA:

Last Name: Younis
First Name: Marwan
Citizenship: United States
Marital Status: married
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BUSINESS AFFILIATIONS:

SAR-Techniques Group Leader, Research Scientist
Microwaves and Radar Institute
German Aerospace Center (DLR)
Münchner Straße 20
82234 Oberpfaffenhofen, Germany

and Professor (W3) Spaceborne Radar Systems
Faculty of Electrical Engineering and Information Technology
Karlsruhe Institute for Technology (KIT)
Engesserstraße 5
76131 Karlsruhe, Germany

EDUCATION:

School	1976 - 1982	Primary school, Baghdad, Iraq
	1982 -1988	Secondary school Baghdad College, Iraq Graduation: Baccalaureate (university qualification) Grade: 96.8 cumulative average
University	1988 - 1992	Electrical Engineering, Department of Electronics & June Communication, University of Baghdad, Iraq
	1992	Degree: Bachelor of Science (B.Sc.) Grade: excellent (cumulative average: 90.1%)
	1993 – 1997	Electrical Engineering at the University of Karlsruhe, Germany Specialization: communications and high-frequency techniques Diploma Thesis Title: Investigations on Millimetre Wave Propagation for the Broad-band Information Transfer Dec. 1997 Degree: Dipl.-Ing. (equivalent to Master) Grade: 1.6 (range from 1.0 excellent to 5.0 insufficient)
Ph.D.	1998 - 2004	Research scientist (Ph.D. student) at the Institute for High Frequency Techniques at the University of Karlsruhe, Germany Thesis Title: Digital Beam-Forming for High Resolution Wide Swath Real Time and Synthetic Aperture Radar 2004 Doctoral examination. Degree <i>Doktor-Ingenieur</i> (Dr.-Ing. equivalent to Ph.D.) Grade: <i>summa cum laude</i>
Professor	June 2017	Professor (W3) for Spaceborne Radar Systems at the Karlsruhe Institute for Technology (KIT)

PROFESSIONAL AND WORK EXPERIENCE:

June 1994 - April 1996	Student assistant at the Department of Applied Mathematics, University of Karlsruhe, Germany Occupation: Procurement, administration and troubleshooting of computers and peripherals; installation and configuration of software packages
May - Sep. 1996	Internship at NASA/JPL, Pasadena, USA under guidance of Dr. Yunjin Kim Occupation: Design, fabrication and measurement of an aperture coupled dual polarized L-band patch antenna array for JPL's airborne radar AIRSAR, Support of the AIRSAR-Mission 1996
Oct. 1996 – July 1997	Student assistant at the Department of High Frequency Techniques, University of Karlsruhe, Germany Occupation: Design, fabrication and measurement of antennas
1998 - 2004	Research scientist at the department of High Frequency Techniques, University of Karlsruhe, Germany

Research topics	Digital beam-forming, SAR-simulator, non-uniform arrays, automotive cruise control und short range radar systems, multi-transmit radar, super resolution algorithms, wave propagation, interference from ultra-wideband systems
Teaching	<ul style="list-style-type: none"> • Supervision of diploma students und student projects • Lecture Advanced Radio Communication I • HF-Lab: supervisor of the experiment Impulse Reflectometry
since April 2005	Research Scientist at the German Aerospace Center (DLR), Microwaves and Radar Institute
since January 2008	Leader of the SAR-Techniques Group at the Radar Concepts Department (RKO) with 7 to 10 researchers, engineers and Ph.D students
Research topics	Multi-channel digital beam-forming (DBF) synthetic aperture radar (SAR), new DBF techniques und signal processing, models and SAR performance computation, synchronization and phase noise, parameter space-trade of DBF and MIMO-SAR, new SAR operation mods, MIMO radar demonstrator, TerraSAR-X experiments on azimuth phase coding und nadir-echo characterization, radar system for the detection of space debris, reflector antenna based SAR, and reflectarrays and digital feeds.
March - June 2013	DLR Research Semester (Sabbatical) at the Jet Propulsion Laboratory (NASA/JPL), Pasadena, USA
Dec 2018 - Feb 2019	Otto-Lilienthal Research Semester (Sabbatical) at the Jet Propulsion Laboratory (NASA/JPL), Pasadena, USA

LECTURE ACTIVITIES:

Karlsruhe Institute for Technology	2003-2018	Lecturer for Advanced Radio Communication I (winter term) at the Karlsruhe Institute for Technology
	2019	Lecturer for Digital Beam-Forming for Radar and Communication Systems (winter term)
	since 2020	Lecturer for <i>Digitale Strahlenformung für bildgebendes Radar</i> (German, winter term)
	since 2005	Lecturer (tutorial) for Spaceborne SAR Remote Sensing (Prof. Moreira, summer term)
	since 2015	SAR Computer Workshop
Carl-Cranz-Gesellschaft	since 2008	Course SE 2.38 (Prof. Wiesbeck) Radar Techniques for Developers and System Engineers (annual or bi-annual lecture, one day)
	2009, 2011	Course SE 2.06 (Prof. Hajnsek) SAR Principles and Applications
	2011	Course SE 2.07 (Prof. Schroth) Radar und Measurements
Further Teaching	2020, 2021,	Lecture and workshop on Radar Remote Sensing at the Julius-Maximilians-University Würzburg (2 days)
	2022	IFT Summer School by IEEE/GRSS, Barcelona
	2019	IFT Summer School by IEEE/GRSS, Barcelona

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- 2014, 2013, Conference tutorials: EUSAR, EuMW
 - 2018, 2021 GRSS Webinar series, and GRSS/APSAR tutorial on SAR
 - 2015 ESA Advanced Training Course on Land Remote Sensing
 - since 2006 Introduction to SAR (3-hour, annual) for the lecture Radar System Engineering (Prof. Wiesbeck)
 - 2014, 2016, European School of Antennas/European Microwave Association Radar
 - 2022 All Digital Radar System Engineering
 - 2011, 2013 SAR lecture, Invitation by the Chinese Academy of Sciences, Institute of Electronics

SUPERVISION OF UNDERGRADUATE, GRADUATE, AND DOCTORAL STUDENTS:

Diploma, Master, and Bachelor

since 2001 over 30 students for the Diploma, Master, Bachelor, and Internship.

Doctoral Students (supervisor and co-supervisor)

- 2007 **Karin Schuler**, Intelligente Antennensysteme für Kraftfahrzeug-Nahbereichs-Radar-
 - 2007 Sensorik
 - 2009 **Rainer Lenz**, Hochpräzise, kalibrierte Transponder und Bodenempfänger für satelliten-
 - 2009 gestützte SAR-Missionen
 - 2009 **Nicolas Gebert**, Multi-Channel Azimuth Processing for High-Resolution Wide-Swath SAR
 - 2011 Imaging
 - 2011 **Jung-Hyo Kim**, Multiple-Input Multiple-Output Synthetic Aperture Radar (SAR) for
 - 2013 Multimodal Operation
 - 2014 **Martina Gabele**, SAR/GMTI for Space-Based Radar with Two-Dimensional Antenna Arrays
 - 2017 **Sigurd Huber**, Spaceborne SAR Systems with Digital Beamforming and Reflector Antenna
 - 2017 **Felipe Queiroz de Almeida**, Multichannel Staggered SAR for High-Resolution Wide-Swath
 - 2018 Imaging
 - 2018 **Tobias Rommel**, Development, Implementation, and Analysis of a Multiple-Input
 - 2019 Multiple-Output Concept for Spaceborne High-Resolution Wide-Swath Synthetic Aperture
 - 2019 Radar
 - 2022 **Tobias Bollian**, Digital Beamforming for Radio Frequency Interference Suppression in
 - 2022 Synthetic Aperture Radar
 - 2022 **Sushil Kumar Joshi**, Maritime Moving Target Detection, Tracking and Geocoding using
 - 2022 Range-Compressed Airborne Radar Data
 - 2018 – **Jan Paul Kroll**, Kalibrierkonzepte von Radarsystemen für die Erdbeobachtung
 - 2018 – **Ershad Junus Amin**, Development, Analysis and Signal Processing of Advanced Multi-
 - 2018 Aperture Synthetic Aperture Radar Imaging Modes
 - 2019 – **Fairouz Stambouli**, Digital beamforming for Cognitive Synthetic Aperture Radar
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Examination Committees

Universitat Politecnica de Catalunya, Spain:

- 2012 **Juan Carlos Merlano**, Phase Synchronization Scheme for Very Large Baseline Coherent
- 2012 Arrays
- 2015 **Eduardo Makhoul**, Moving Target Indication for Future Space-Borne Synthetic Aperture
- 2015 Radar Systems

ETH Zurich, Switzerland:

2016 **Simone Baffelli**, Development of Calibration Methods for a Ku-Band Polarimetric Terrestrial Radar Interferometer

Karlsruhe Institute for Technology (KIT):

2019 **Tanja Harbaum**, Dynamisch adaptive Mikroarchitekturen mit optimierten Speicherstrukturen und variablen Befehlssätzen

2020 **Iraklis Kremastiotis**, Implementation and Characterisation of Monolithic CMOS Pixel Sensors for the CLIC Vertex and Tracking Detectors

2021 **Hui Zhang**, Development of Integrated Detectors for Charged Particles and Photons

Nadir Muhammad Khand, Trusted SoC Realization for Remote Dynamic IP Integration

2022 **Sushil Kumar Joshi**, Maritime Moving Target Detection, Tracking and Geocoding using (Hauptreferent) Range-Compressed Airborne Radar Data

AWARDS AND RECOGNITIONS:

IEEE GRSS first prize, 1999	IEEE Geoscience and Remote Sensing Society Student Paper Award for the contribution (co-author): „Millimetre wave scattering and attenuation in limited vegetation structures“
IEEE Region 8 first prize, 2003	IEEE Region 8 Student Paper Contest for the contribution (co-author): Suppression of Range Ambiguities in SAR Systems
University of Karlsruhe, 2005	Hermann-Billing Prize of the <i>Karlsruher Corps</i> and the University of Karlsruhe for the Dissertation „Digital Beam-Forming for High Resolution Wide Swath Real and Synthetic Aperture Radar“
IEEE GRSS Transaction Prize, 2008	IEEE Geoscience and Remote Sensing Society 2008 Transactions Prize Paper Award for the contribution (co-author): „TanDEM-X: A Satellite Formation for High-Resolution SAR Interferometry“
Recognition, 2012	Certificate of Recognition of TanDEM-X Achievements and Impact, Group Achievement Award, European SAR conference (EUSAR)
IEEE W.R.G. Baker Award, 2012	IEEE W.R.G. Baker Paper Award of the Board of Directors for the paper (co-author): „TanDEM-X: A Satellite Formation for High-Resolution SAR Interferometry“
DLR-Forschungssemester, 2012	Sabbatical grant by the German Aerospace Center directorate
GvF Otto-Lilienthal, 2017	The Otto-Lilienthal-Forschungssemester, sabbatical grant awarded by the <i>Gesellschaft von Freunden des DLR</i>
IEEE Fellow	Elevated by the IEEE Board of Directors to IEEE Fellow as of January 2019, with the citation “for Contributions to Digital Beam-Forming Techniques for Spaceborne Radar Systems”.

DLR Senior Scientist, 2021 Awarded by the directorate of the German Aerospace Center (DLR) in recognition to outstanding professional achievements

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

1995 / 2005 / 2008 / 2019 IEEE Student Member / Member / Senior Member / IEEE Fellow

1995 - 2005 Active member of the IEEE Student Branch Karlsruhe: with various offices: chair, treasurer, webmaster

since 2009 Member of the IEEE Geoscience and Remote Sensing Society (GRSS)

2009 - 2013 Chair of the GRSS Working Group Active Microwaves – Radar and SAR

2013 - 2021 Chair/Co-Chair of the Technical Committee „Instrumentation and Future Technologies“ (GRSS)

2012 - 2019 Associate Editor for the IEEE Geoscience and Remote Sensing Letters

2015 - 2017 Associate Editor for the IEEE Geoscience and Remote Sensing Magazine

2016 - 2017 Director of Corporate Relations for the GRSS

2018 - 2020 Member of the Administrative Committee (AdCom) of the IEEE Geoscience and Remote Sensing Society (GRSS)

FURTHER OCCUPATION:

HR Institute Council Elected member of DLR-HR's Institute Council (2006-2012, 2016-2018, and 2021-2023)

Vertrauensperson Initial point of contact at the HR Institute for questions related to Good Scientific Practice (2021-2023)

DGON since 2017 Spaceborne Radar Systems technical committee of the *Deutsche Gesellschaft für Ortung und Navigation - Fachausschuss Radartechnik*

IGARSS 2012 Organizing team and Treasurer for the International Geoscience and Remote Sensing Symposium (IGARSS) in Munich with 2 700 participants

Reviewer Reviewer for transactions and conference papers (mainly IEEE)

Conferences Regular organisation of invited sessions at international conferences

Session Chair Session chair for sessions at international conferences

Member of TPC (Technical Program Committee) International Geoscience and Remote Sensing Symposium (IEEE/GRSS), International Radar Symposium (DGON), Advanced RF Sensors and Remote Sensing Instruments (ESA/ESTEC), European Conference on Synthetic Aperture Radar (VDE), and UAVSAR Workshop (NASA/JPL)

LANGUAGES:

fluent German, Arabic and English (through my German Mother and Iraqi Father)

basics Spanish and French