

King Abdullah University of Science and Technology (KAUST)  
Computer, Electrical and Mathematical Science and Engineering  
Computer Science  
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**Research Interests:** visualization, computer graphics

**Positions:**

2018 –	<b>KAUST</b> , Saudi Arabia, nanovis.kaust.edu.sa
2022 – 2023	Program Chair
2021 –	Professor
	Associate Professor
2017 –	<b>Nanographics GmbH</b> , Austria, nanographics.at
2018 –	Co-founder
	CEO
2013 – 2018	<b>TU Wien</b> , Austria, www.cg.tuwien.ac.at
2017 –	Associate Professor
	Assistant Professor
2006 – 2015	<b>University of Bergen</b> , Norway, vis.uib.no
2013 –	Adjunct Professor (20%)
2011 –	Professor
2008 –	Associate Professor
	Postdoctoral Fellow
2008 – 2012	<b>Christian Michelsen Research</b> , Norway, www.cmr.no
	Scientific Advisor (20%)
2002 – 2006	<b>TU Wien</b> , Austria, www.cg.tuwien.ac.at
2005 –	Postdoctoral Research Associate, ExVisation project
	Research Assistant ADAPT project

**Qualifications:**

Habilitation:	<b>Effective Visual Representations</b>
Title:	Privatdozent ( <i>venia docendi</i> ), <b>TU Wien</b> , Austria, Computer Science, 2016 <i>compatible with Senior Lecturer</i>
Dissertation:	<b>Importance-Driven Expressive Visualization</b>
Title:	Doctor technicae ( <b>Dr. techn.</b> ), <b>TU Wien</b> , Austria, Computer Science, 2005
Supervisor:	M. Eduard Gröller <i>compatible with Doctor of Philosophy (PhD)</i>
Master Thesis:	<b>Applications of Hardware-Accelerated Filtering in Computer Graphics</b>
Title:	Diplom-Ingenieur ( <b>Dipl.-Ing.</b> ), <b>TU Wien</b> , Austria, Computer Science, 2002
Supervisors:	Markus Hadwiger, Helwig Hauser, M. Eduard Gröller <i>compatible with Master of Science (MSc)</i>

## Externally Funded Projects:

2022 – 2024	<b>Commercial Development and Validation of MesoCraft Software for 3D Modelling and Animation of Cryo-Electron Tomography Data (#1068)</b> Proposer, PI KAUST Research Translation Fund web-based molecular modeling system 883 000 \$
2021 – 2023	<b>MesoNet: Rapid 3D Modeling and Visualization of Mesoscale Biological Structures (#757)</b> Proposer, PI, Supervisor KAUST Competitive Research Grants Program basic research in microscopy visualization 399 825 \$
2021 – 2022	<b>AI-Powered 3D Volume Visualization of Cryo-EM Tomography (#908)</b> Proposer, PI KAUST Impact Acceleration Fund web-based microscopy visualization system 100 000 \$
2017 – 2020	<b>Integrative Visual Abstraction of Molecular Data (#I2953)</b> Proposer, PI, Supervisor FWF Austrian Science Fund: Joint Projects (with Inria, France) basic research in illustrative visualization 148 000 €
2017 – 2019	<b>BioNetIllustration: User centric illustrations of biological networks (#747985)</b> Co-Proposer, Supervisor European Commission: Marie Curie Fellowship (ranked as #38 out of 800+) basic research in illustrative graph visualization 166 000 €
2013 – 2020	<b>Visual Computing: Illustrative Visualization (#VRG11-010)</b> Proposer, PI, Supervisor WWTF Vienna Science and Technology Fund: Vienna Research Groups 2011 basic research in visualization of biological structures 1 500 000 €
2013 – 2017	<b>Illustrative Visualization of Processes (#PCIG13-GA-2013-618680)</b> Proposer, Fellow European Commission: Marie Curie Career Integration Grant (ranked as #5 out of 144) grant for supporting fellow during the relocation period 100 000 €
2012 – 2015	<b>PhysioIllustration: Illustrative Visualization of Physiological Processes (#218023)</b> Proposer, PI, Researcher Norwegian Research Council: FRIPRO basic research in illustrative visualization of physiological processes 8 700 000 NOK
2009 – 2012	<b>IllustraSound: Supporting Communication with Illustrative Visualization (#193170)</b> Proposer, PI, Supervisor Norwegian Research Council: VERDIKT basic and applied research project on illustrative ultrasound visualization 8 300 000 NOK
2009 – 2012	<b>GeoIllustrator: Illustrative Visualization of Geological Data and Models</b> Supervisor Statoil (Equinor) Academia Agreement basic research project on illustrative geological visualization 2 600 000 NOK
2005 – 2008	<b>ExVisation: Importance-Based Feature Enhancement in Volume Imaging (#P18322)</b> Proposer, Researcher FWF Austrian Science Fund: Research Projects basic research project on illustrative volume visualization 213 000 €

## Recognition:

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### Awards:

2023	IEEE VIS Best Paper Honorable Mention
2020	Computer Graphics Forum Cover Contest
2019	1st Place Graph Drawing Contest
2018	IEEE VIS Best Paper Honorable Mention
2017	IEEE VIS Best Paper Honorable Mention
2016	Austrian Computer Graphics Award for the Best Technical Solution
2016	Honorable Mention of EG VCBM
2015	Best Paper Award, SCCG
2015	Best Paper of EG VCBM
2013	1st Place Eurographics Dirk Bartz Prize for Visual Computing in Medicine
2013	Second Best Paper Award of SCCG
2012	Best Papers of SBIM
2012	Second Best Paper Award of SCCG
2010	Best Student Paper Award Graphics Interface
2009	Honorable Mention for Best Paper at the EG UK TPCG
2004	Best Paper Nomination IEEE Visualization
2004	Second Best Paper Award of SCCG

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### Plenary Talks:

2023	<i>3D Modeling of Cellular Mesoscale</i> EG Workshop on Molecular Graphics and Visual Analysis of Molecular Data, Leipzig, Germany
2019	<i>Automated Visualization: The Future of In Situ Processing?</i> EG Symposium on Parallel Graphics and Visualization, Porto, Portugal
2018	<i>Large-Scale Interactive Visualization of Protein Environments</i> Visualizing Biological Data - VizBi, Broad Institute of MIT and Harvard, USA
2017	<i>Visual Integration of Molecular and Cell Biology</i> EG SIGRAD, Norrköping, Sweden
2017	<i>Visual Integration of Molecular and Cell Biology</i> CESCG Conference, Smolenice, Slovakia
2017	<i>Multi-Scale Molecular Data Visualization</i> Computer Vision Winter Workshop, Retz, Austria
2013	<i>Declarative Visualization</i> Spring Conference on Computer Graphics, Smolenice, Slovakia
2011	<i>Passing Through the Trough of Disillusionment of Illustrative Visualization</i> EG-UK Theory and Practice in Computer Graphics, Warwick, UK

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**Elected Service:**

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**Executive Committee:**

2020 –	Eurographics Society
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**Conference Organization:**

2025	IEEE PacificVis TVCG-Track Chair
2023 – 2024	IEEE VIS Area Chair
2023 – 2024	IEEE VGTC Significant New Researcher Award Committee
2022	EG EuroGraphics Advisory Board
2021	EG EuroGraphics Full Papers Co-Chair
2019 – 2020	EG EuroVis Full Papers Co-Chair
2017 – 2018	IEEE VIS Panels Co-Chair
2017	SCCG Papers Chair
2017	IEEE Pacific Visualization Visualization Storytelling Contest Co-Chair
2016	IEEE Pacific Visualization Papers Chair
2015	Austrian Computer Science Day Co-Organizer
2014 – 2015	EG EuroVis State-of-the-Art-Reports Track Chair
2014	EG Workshop on Visual Computing for Biology and Medicine Workshop Chair
2011	EG/IEEE Symposium on Visualization EuroVis Organizational Chair
2010	Eurographics Posters Chair

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**Journal Editor:**

2023 –	IEEE Transactions on Visualization and Computer Graphics, Associate Editor
2020 – 2022	Computer Graphics Forum, Associate Editor
2010	Computers & Graphics, Special Issue on Illustrative Visualization, Guest Editor
2011	IEEE TVCG, Search Committee for the Editor-in-Chief

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**International Program Committee Member:**

IEEE VIS 2008, 2009, 2013, 2014, 2015, 2020, 2021
EG EuroVis 2009, 2010, 2011, 2015, 2017
IEEE PacificVis 2011, 2012, 2015, 2017

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**Reviewing:**

Visualization:	TVCG, CGF, VIS, EuroVis, Pacific Visualization,
Graphics:	ACM TOG, SIGGRAPH, SIGGRAPH Asia, Eurographics, Pacific Graphics,
Visual Comp.:	I3D, TAP, Expressive, Computers and Graphics, CADG, VCBM

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**Service at KAUST:**

2022 – 2023	Chair of Computer Science Program
2023 –	Ibn Rushd Fellowship Committee
2022 – 2024	Scientist and Engineer Review Committee
2022 – 2023	Program Review Committee
2020 –	CS Program Student Recruitment Committee
2021 – 2021	CS Program Graduate Seminar Organization
2019 – 2020	CS Program Curriculum Committee

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**Service at TU Wien:**

2017	Jury Member EPILOG Faculty of Informatics
2015	Organizer of the Austrian Computer Science Day

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**Habilitation Evaluation:**

2020 | C. Bohak, University of Ljubljana, Slovenia

**PhD Thesis Examiner:**

2024	P. Bobák, <i>Automatic Point-Feature Label Placement</i>
2024	Z. Lesar, <i>Interactive Visualization of Densely Populated Volumes</i>
2023	Y. Wang, <i>Model-Based Computational Cryo-Electron Tomography - Joint Reconstruction with Awareness of Noise</i>
2017	P. Hermosilla, <i>Advanced inspection techniques for molecular simulations</i> Universitat Politècnica de Catalunya in Barcelona
2016	N. Smit, <i>Virtual Surgical Pelvis</i> TU Delft, The Netherlands
2016	T. Muhammad, <i>Selecting, Quantifying, Optimizing, &amp; Understanding Visualizations</i> Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Pakistan
2015	J. Molin, <i>Designing a digital pathology workstation for routine practice</i> Chalmers University, Sweden
2014	O. Strnad, <i>Algorithms for Detecting Pathways in Protein Structures and Their Ensembles</i> Masaryk University, Czechia
2013	R. Bramon, <i>Multimodal Visualization based on Mutual Information</i> University of Girona
2012	M. Ruiz, <i>Advanced Illumination and View-Selection Techniques for Volume Rendering</i> University of Girona
2009	M. M. Malik, <i>Feature Centric Volume Visualization</i> TU Wien, Austria
2009	P. Rautek, <i>Semantic Visualization Mapping for Volume Illustration</i> TU Wien, Austria
2009	P. Kohlmann, <i>LiveSync: Smart Linking of 2D and 3D Views in Medical Applications</i> TU Wien, Austria

**Teaching:****KAUST:**

Summer 2023	Information Visualization and Visual Analytics, instructor (30 students)
Spring 2019 – 2021	Human-Centric Visualization, instructor (6 students)
Fall 2019 –	Computer Graphics, instructor (10 students)

**TU Wien:**

Winter 2013 – 2018	Real-Time Visualization (15 students), instructor
Summer 2017 – 2018	Computer Animation (15 students), instructor
2013 – 2017	Seminar in Computer Graphics, supervisor

**University of Bergen:**

Fall 2007 – 2012	Seminar in Visualization, instructor (5 students)
Spring 2010 – 2012	Selected Topics in Visualization, instructor (5 students)

**Summer Schools:**

2011	User-Centric Scientific Visualization, lecturer, CEA-EDF-Inria (40 students)
2017	Molecular Visualization, lecturer, Linköping University (25 students)

**Supervision:****Primary Supervision Summary (Ongoing+Completed):**

MSc: 3+16

PhD: 4+11 (Co: 8)

PostDoc: 1+6

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**Student Awards:****TU Wien**

2022

D. Kouřil, *EuroVis Best PhD Award*

2022

S. Mazza, *Distinguished Young Alumn Award*

**PhD Advisor:****KAUST**

2023 –	E. Bones, <i>TBD</i>
2023 –	Z. Alsuwaykit, <i>TBD</i>
2022 –	D. Jia, <i>TBD</i>
2020 –	D. Luo, <i>TBD</i>
2019 –	R. Alharbi, <i>Scaling Atomistic Molecular Visualization to Microscale for Science Outreach</i>
2020 – 2024	N. Nguyen, <i>Cellular Mesoscale Visualization from Electron Microscopy Imaging</i>

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**TU Wien**

2017 – 2021	D. Kouřil, <i>Interactive Visualization of Dense and Multi-Scale Data for Science Outreach</i> Best Dissertation Award, Eurovis 2022 postdoctoral fellow at Harvard University, USA
2015 – 2019	H. Miao, <i>Geometric Abstraction for Effective Visualization and Modeling</i> postdoctoral fellow at LLNL, USA
2016 – 2019	T. Klein, <i>Instant Construction of Atomistic Models for Visualization</i> CEO of Nanographics GmbH, Austria
2014 – 2017	N. Waldin, <i>Using and Adapting to Limits of Human Perception in Visualization</i> software engineer at Siemens, Austria
2014 – 2017	J. Sorger, <i>Integration Strategies in the Visualization of Multifaceted Spatial Data</i> postdoctoral fellow at Complexity Science Hub Vienna, Austria
2013 – 2016	M. Le Muzic, <i>Interactive and Illustrative Visualization of Lifeforms</i> software engineer at Bentley Systems, France

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**Uni Bergen**

2009 – 2013	E. Lidal, <i>Sketch-based Storytelling for Cognitive Problem Solving</i> manager at Ulriken Consulting, Norway
2009 – 2013	Å. Birkeland, <i>Ultrasonic Vessel Visualization: From Extraction to Perception</i> senior consultant at Webstep, Norway
2009 – 2012	V. Šoltészová, Perception-Augmenting Visualization principal analyst at Equinor, Norway

**PhD Co-Advisor:****Inria**

2017 – 2020	S. Halladjian, <i>Spatially Integrated Abstraction of Genetic Molecules</i> senior software engineer Capgemini Engineering, France
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**Uni Bergen**

2012 – 2017	C. Kehl, <i>Visual Techniques for Geological Fieldwork Using Mobile Devices</i> scientific programmer University of Amsterdam, Netherlands
2010 – 2014	A. Brambilla, <i>Visibility-oriented Visualization Design for Flow Illustration</i> leading advisor at Equinor, Norway
2010 – 2014	M. Natali, <i>Sketch-based Modelling of Geomorphological Processes</i> lead engineer at Norwegian Institute of Bioeconomy Research, Norway
2009 – 2013	A. Sima, <i>An Improved Workflow for Image- &amp; Laser-based Virtual Outcrop Modeling</i> expert data analyst at European Environment Agency
2008 – 2012	P. Angelelli, <i>Visual Exploration of Human Physiology</i> freelance software engineer
2007 – 2010	M. Ystad, <i>Quantitative Structural and Functional Brain Imaging in Cognitive Aging</i> senior physician at Oslo University Hospital, Norway
2006 – 2010	J.-P. Balabanian, <i>Multi-Aspect Visualization</i> senior developer at Eviny, Norway

## **Supervision:**

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### **MS Advisor:**

<b>KAUST</b>	
2023 –	A. Irger, MS thesis TBD
2023 –	D. Li, MS thesis TBD
2023 –	O. Mena, MS thesis <i>GeoConverse: Vision-Enhanced LLM for Global Geospatial Visualization</i>
2020 – 2022	F. Liang, MS thesis <i>NeuroMicroscopy: A Differentiable Approach to CryoEM Microscopy Simulation</i>
2019 – 2020	Y. Aldolaijan, no MSc thesis senior software engineer at Mozn, Saudi Arabia

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<b>TU Wien</b>	
2018 – 2021	S. Mazza, <i>Homomorphic-Encrypted Volume Rendering</i> Distinguished Young Alumn Award for the Best CS Master thesis freelance software engineer
2018 – 2019	R. Horvath, <i>Image-Space Metaballs Using Deep Learning</i> senior software engineer at Google, Switzerland
2018 – 2019	E. Mörth, <i>Interactive Reformation of Fetal Ultrasound Data to a T-Position</i> postdoctoral fellow Harvard University, USA
2017 – 2019	P. Plank, <i>Effective Line Drawing Generation</i> chief data and analytics officer at Austrian Power Grid, Austria
2016 – 2017	D. Gehrer, <i>Visualizing Molecular Machinery</i> senior software engineer at mySugr, Austria
2016 – 2017	D. Kouřil, <i>Maya2CellVIEW: Creating Large and Complex Molecular Scenes</i> postdoctoral fellow Harvard University, USA
2014 – 2015	S. Brenner, <i>Projector-Based Textures for 3D-Printed Models</i> production coordinator, Caricol - Digestive & Immune Health, Austria
2006 – 2007	M. Haidacher, <i>Importance-Driven Rendering in Interventional Imaging</i> innovation manager at Skidata, Austria
2004 – 2005	M. Artner, <i>High-Quality Volume Rendering with Resampling in Frequency Domain</i> aerospace engineer at TTTech, Austria

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<b>Uni Bergen</b>	
2012 – 2013	M. Bendiksen, <i>Rapid Modeling of Geology</i> senior consultant at Webstep, Norway
2011 – 2012	S. Hisdal, <i>Frequency Modulated Shading</i> programmer at Machina AS, Norway
2007 – 2008	Y. Hammersland, <i>Visualization of Medical Data in Immersive Environments</i> senior consultant at Webstep, Norway
2007 – 2008	Å. Birkeland, <i>View-Dependent Peel-Away Visualization for Volumetric Data</i> senior consultant at Webstep, Norway
2007 – 2008	G. Nes, <i>Physically Plausible Weather Visualization</i> senior software developer at The Norwegian Digitalisation Agency, Norway

## **Supervision:**

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### **Postdoctoral Supervisor:**

#### **KAUST**

2022 –	D. Khan, nanovisualization, PhD from University of Chinese Academy of Sciences, Beijing, China
2020 – 2021	C. Bohak, nanovisualization, PhD from University of Ljubljana, Slovenia

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#### **TU Wien**

2017 – 2019	H.-Y. Wu, graph visualization, PhD from University of Tokyo, Japan lecturer at University of Applied Sciences, St. Pölten, Austria
2015 – 2018	P. Mindek, nanovisualization, PhD from TU Wien, Austria CTO at Nanographics GmbH, Austria
2014 – 2016	M. Bernhard, visualization and psychophysics, PhD from TU Wien, Austria senior software engineer in geometry processing at coolIT GmbH, Austria
2013 – 2016	M. Waldner, human-computer interaction, PhD from Graz University of Technology, Austria assistant professor on a tenure track at TU Wien, Austria

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#### **Uni Bergen**

2009 – 2011	O.K. Øye, acoustic imaging and visualization, PhD from University of Bergen, Norway project leader at Equinor, Norway
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## **Technology Transfer and Entrepreneurship**

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### **Startups:**

2017	<b>Nanographics GmbH</b>
Role:	CEO (2017-2019), co-founder and scientific advisor (2019-)
Founders:	Ivan Viola, Tobias Klein, Peter Mindek, Eduard Gröller, Werner Purgathofer, Barbora Kozlíková

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### **Patents:**

2023	<b>Two-dimensional scalar field data visualization method and system based on colormap optimization</b>
Patent:	US Patent 11,790,484
Authors:	Qiong Zeng, Yunhai Wang, Changhe Tu, Yi Cao, Ivan Viola

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### **Seminar and Tutorial Organization:**

2024	Scripps CellVIS2 Seminar
2023	NII-Shonan Seminar 173
2019	KAUST CellVIS Seminar
2017	ACM SIGGRAPH Asia Course on Information Theory (IT) in Visualization
2016	IEEE VIS Tutorial on Information Theory in Visualization
2016	Eurographics Tutorial on Information Theory in Visualization
2011	ACM SIGGRAPH Asia Course Applications of IT in CG and Visualization
2011	IEEE VisWeek Tutorial Applications of Information Theory in Visualization
2007	Eurographics Tutorial on Applications of Information Theory to CG
2006	ACM SIGGRAPH Course Illustrative Visualization in Science and Medicine
2005 – 2007	IEEE Visualization Tutorial on Illustrative Visualization
2005 – 2008	Eurographics Tutorial on Illustrative Visualization

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**Outreach:**

2024	TellUs (ongoing cooperation) Visualiseringscenter C, Sweden (online)
2023	Chemistry of Life (cooperation) Visualiseringscenter C, Sweden (online)
2021	Nature Images of the Month (online)
2021	Forschern gelingt 3D-Bild von Sars-CoV-2 Spiegel, Germany (online)
2021	Wiener Forscher machen SARS-CoV-2 in 3D sichtbar Austrian Press Agency, Austria, (online)
2021	Computer Graphics Forum Cover Contest Eurographics (online)
2020	<i>Live Interview with Research Scientist Ondrej Strnad</i> Al Arabiya TV News Channel, Saudi Arabia
2020	<i>Peering under the "hood" of SARS-CoV-2</i> KAUST Discovery, Saudi Arabia (online)
2020	<i>Scientists reveal accurate data visualisation of Covid-19 coronavirus</i> Daily Mail, UK (online)
2020	<i>KAUST scientists reveal most accurate image of COVID-19</i> Saudi Gazette, Saudi Arabia (online)
2020	<i>3D Model Looks "Under the Hood" of SARS-CoV-2</i> Technology Networks, UK (online)
2020	<i>Take A Look At The Most Accurate And Up-To-Date 3D Model Of Coronavirus Yet</i> IFLScience, UK (online)
2020	<i>The Most Realistic Image of Coronavirus Obtained</i> Somag News
2020	<i>Scientists have created the most accurate 3D model of the coronavirus</i> Saxon, UK
2019	Conference Contest Creative Topics: Meal Ingredients Graph Drawing (online)
2017	Lichtinstallation: Interaktive 3D-Visualisierung von Zellen in atomarer Auflösung Eule, Bibliothek TU Wien, Austria (online)
2016	Report: Bei der Transkriptase Bitte Links Abbiegen, Florian Aigner TU Wien, Austria (online)
2014	3D-teknologi skal bidra til operasjoner som belaster kroppen mindre Teknisk Ukeblad, Norway (online)
2013	Interview: Informatik, die unter die Haut geht Der Standard, Austria (online)
2013	Video Profil: Ivan Viola WWTF, Austria (online)