

Cristian Axenie

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Employment

Senior Research Engineer

Artificial Intelligence and Machine Learning in Big Data
Huawei German Research Center, Germany

2017 - present

Head of Laboratory / Principal Investigator

Artificial Intelligence and Machine Learning for Virtual Reality
AUDI Konfuzius-Institut Ingolstadt, Germany

October 2017 - present

Lecturer

Artificial Intelligence and Machine Learning
Technische Hochschule Ingolstadt, Germany

October 2017 - present

Software Engineer

Embedded Linux Development
WindRiver (Intel), Galati, Romania

July 2009 - July 2011

Software Engineer (intern)

Multi-core Digital Signal Processors (DSP)
Freescale Semiconductor (NXP), Bucharest, Romania

July - October 2008

Consultant for startup companies

Applied Artificial Intelligence and Machine Learning

2016 - present

Education

Postdoctoral Researcher

Technische Universität München, Germany

May 2016 - April 2017

Doctor of Engineering (Dr. Eng. Univ.)

Neuroscience and Robotics (**Summa cum Laude**)
Technische Universität München, Germany
Advisor: Prof. Dr. Jorg Conradt (KTH Stockholm)

October 2011 - April 2016

Master of Science (M.Sc.)

Advanced Control Engineering and Robotics (**top 1%**)
Dunărea de Jos University (UGAL), Galați, Romania
Advisor: Prof. Dr. Razvan Solea (University of Galati)

October 2009 - June 2011

Bachelor of Science (B.Sc.)

Automation and Industrial Informatics (**top 1%**)
Dunărea de Jos University (UGAL), Galați, Romania
Advisor: Prof. Dr. Alexandru Stancu (University of Manchester)

October 2005 - June 2009

Teaching experience

University teaching

Lecturer

Technische Hochschule Ingolstadt, Germany

WS 2017 - SS 2019

Instructor

Technische Universität München, Germany

WS 2016

Teaching Assistant

Technische Universität München, Germany

WS 2011 - WS 2016

Teaching Assistant

Dunărea de Jos University (UGAL), Galați, Romania

SS 2010, SS 2011

Lecturer

Dunărea de Jos University (UGAL), Galați, Romania

WS 2009, WS 2010

Research Workshops

Workgroup leader

CapoCaccia Cognitive Neuromorphic Engineering Workshop
Sardinia, Italy

April 2013

Workgroup leader

Telluride Neuromorphic Cognition Engineering Workshop
Telluride, USA

July 2013

Lecturer and Instructor

Basecamp.AI Winter School
Vienna, Austria

January 2017

Workgroup leader

Nengo Summer School at University of Waterloo
Canada

June 2016

Lecturer and Instructor

IEEE CIS Summer School On Neuromorphic and Cyborg Intelligent Systems
Zhejiang University, China

September 2015

Student supervision

I have supervised over **30 student's** at **Technische Universität München** between WS2011 and WS2016 on **Project Practical, Advanced Seminar, Bachelor and Master theses**. Between 2017 and 2019 I have supervised **4 Bachelor theses and 1 Master thesis** at **Technische Hochschule Ingolstadt**.

Fellowships

Awarded a BayIntAn Fellowship (5000 EUR) from Bavarian Research Alliance	2017
Awarded a BayIntAn Fellowship (10000EUR) from Bavarian Research Alliance	2016
Awarded a Leonhard Lorenz-Stiftung Fellowship (7000EUR)	2013
Awarded Research Fellowship (5000EUR) by the Science Network of Biomimetic and Biohybrid Systems	2013
Awarded a Bavarian Elite Research PhD Scholarship (4 years funding, ~120.000EUR)	2012

Honors and awards

Awarded a nVidia GPU Grant	April 2018
Awarded Outstanding Reviewer Award from IOP Journal of Neural Engineering	2016
Awarded 1st prize at the Daimler Automotive Big Data Analytics Hackaton	April 2016
Awarded the Microsoft prize (500EUR) at the Burda Hackdays	April 2016
Awarded 1st prize (5000EUR) at the BMW Automotive Hackdays	March 2016
Awarded 4th place at the National IBM “Best Linux Application”	September 2009
Best paper award at the 13th International Scientific Sessions Polytechnic University of Timisoara	May 2009
Awarded University of Galati Performance Scholarship (100 EUR/month)	2006 - 2009

Selected publications

1. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, STARLORD: Sliding window Temporal Accumulate-Retract Learning for Online Reasoning on Datastreams, 2018 IEEE International Conference on Machine Learning and Applications (ICMLA2018).
2. D. Foroni, **C. Axenie** et al., Moira: A Goal-Oriented Incremental Machine Learning Approach to Dynamic Resource Cost Estimation in Distributed Stream Processing Systems, International Workshop on Real-Time BI and Analytics, VLDB 2018.
3. A. Becher, **C. Axenie**, T. Grauschopf, VIRTOOAIR: Virtual Reality TOOLbox for Avatar Intelligent Reconstruction, 2018 IEEE International Symposium on Mixed and Augmented Reality (ISMAR2018).

4. I. Sugiarto, **C. Axenie**, J. Conradt, FPGA-based Hardware Accelerator for an Embedded Factor Graph with Configurable Optimization, Journal of Circuits, Systems and Computers, 2018.
5. F. Mirus, **C. Axenie**, T. C. Stewart, J. Conradt, Neuromorphic Sensorimotor Adaptation for Robotic Mobile Manipulation: From Sensing to Behaviour, Cognitive Systems Research, 2018.
6. **C. Axenie**, C. Richter, J. Conradt, A Self-Synthesis Approach to Perceptual Learning for Multisensory Fusion in Robotics, Sensors 16(10) 1751, 2017.
7. I. Sugiarto, **C. Axenie**, J. Conradt, From Adaptive Reasoning to Cognitive Factory: Bringing Cognitive Intelligence to Manufacturing Technology, International Journal of Industrial Research and Applied Engineering, 2016.
8. **C. Axenie**, J. Conradt, Learning Sensory Correlations for 3D Egomotion Estimation, Springer LNCS in Biomimetic and Biohybrid Systems, pp. 329-338, 2015.
9. I. Susnea, **C. Axenie**, Cognitive Maps for Indirect Coordination of Intelligent Agents, Studies in Informatics and Control Vol. 24, 2015.
10. **C. Axenie**, J. Conradt, Cortically inspired sensor fusion network for mobile robot egomotion estimation, Robotics and Autonomous Systems, 2014.
11. **C. Axenie**, J. Conradt, Cortically Inspired Sensor Fusion Network for Mobile Robot Heading Estimation, Intl Conf. on Artificial Neural Networks, 2013, pp. 240-47.
12. **C. Axenie**, R. Solea, Real time control design for mobile robot fault tolerant control. Introducing the ARTEMIC powered mobile robot, Mechatronics and Embedded Systems and Applications (MESA), 2010 IEEE/ASME Intl. Conf. on, 2010, pp. 7 -13.
13. **C. Axenie**, D. Cernega, Adaptive sliding mode controller design for mobile robot fault tolerant control, Robotics in Alpe-Adria-Danube Region (RAAD), 2010 IEEE 19th International Workshop on, 2010, pp. 253-59.

In review

2019

1. **C. Axenie**, Armin Becher, Daria Kurz, Thomas Grauschopf, Meta-Learning for Avatar Kinematics Reconstruction in Virtual Reality Rehabilitation, 2019 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, ECMLPKDD2019.
2. Sebastian Pohl, Armin Becher, Thomas Grauschopf, **C. Axenie**, Neural Network 3D Body Pose Tracking and Prediction for Motion-to-Photon Latency Compensation in Distributed Virtual Reality, 28th International Conference on Artificial Neural Networks, ICANN2019.

3. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Streaming PCA: Towards Guarantees for Low-latency High-throughput Processing, 2019 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, ECMLPKDD2019.
4. Carlos Salort Sanchez, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, **C. Axenie**, An Online Incremental Clustering Framework for Real-Time Stream Analytics, 2019 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, ECMLPKDD2019.
5. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, NARPCA: Neural Accumulate-Retract PCA for Low-latency High-throughput Processing on Datastreams, 28th International Conference on Artificial Neural Networks, ICANN2019.

Patents

1. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Automatic Model Selection for Timeseries Prediction on Data Streams, 2019.
2. Radu Tudoran, **C. Axenie**, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Online Traffic Controller with Spatio-Temporal Learning Extensions for Online Machine Learning Prediction, 2019.
3. Stefano Bortoli, Radu Tudoran, **C. Axenie**, Mohamad Al Hajj Hassan, Goetz Brasche, et al., DataBase-Embedded Streaming Engine, 2019.
4. Stefano Bortoli, Radu Tudoran, **C. Axenie**, Mohamad Al Hajj Hassan, Goetz Brasche, A System for Higher-Order Stream Processing, 2018.
5. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Streaming Random Forest, 2018.
6. **C. Axenie**, Radu Tudoran, Stefano Bortoli, Mohamad Al Hajj Hassan, Goetz Brasche, Stream Feature Extractor, 2017.

Invited presentations

Invited talk at Lions Club Salzburg on Real-World AI and VR Applications.

February 2019

Invited talk at Lions Club Ubersee Cyber on AI and VR for the Future of Society.

September 2018

Invited talk at the Institute for Cognitive System, TU Munich on Online distributed streaming machine learning: Big Data, Fast Data, All Data.

July 2017

Invited talk at Basecamp.AI Winter School, Vienna in Neural Learning Algorithms.
January 2017

Invited talk at **TEDx - Calea Domneasca - Dare to leave a mark** in Galati, Romania on
Artificial and Biological Intelligence: From Applications to Ethics.
July 2017

Media coverage in **Wired Magazine** about work on neuromorphic computation for visual
rehabilitation at **Wellcome Trust Competition: Hack the Senses** in London, UK.
July 2016

Invited talk at **International Student Scientific Sessions (CERC)** of the **Romanian Military
Technical Academy** for work on dual-adaptive control systems design.
June 2008

Professional service

Organizer of the **Artificial Reality Research and Cooperation Seminar**
Technische Hochschule Ingolstadt (THI), South China University of Technology (SCUT) and
Audi Konfuzius Institute Ingolstadt (AKII)
February 2019

Program-committee member
International Conference of Artificial Neural Networks (ICANN)
2013

Reviewer
MDPI Sensor Journal, IOP Journal of Neural Engineering
2016 - present

Advisory board / Consulting
Cambridge Humanae, Soley, GoalPlay, Siemens
2016 - 2018

Professional development

Deep Learning Workshop Certificate
May 2017

Entrepreneurial Thinking Workshop Certificate
December 2014

Effective Student Mentoring Workshop Certificate
April 2014

Technical Writing Workshop Certificate
October 2012

Designer certificate on dependable embedded systems
September 2008

Professional societies

IEEE, Computational Intelligence Society
Bernstein Association for Computational Neuroscience
Free Software Foundation
as of 2007
as of 2011
as of 2012