CRC/Transregio TRR 169
Crossmodal Learning: Adaptivity, Prediction and Interaction

Autumn Symposium 2024

Hamburg, 28.-29. November 2024

- **Meeting Venue**
  Konrad-Zuse Lecture Hall B-201 · Informatikum · Vogt-Kölln-Str. 30, 22527 Hamburg
  28/Nov/2024: 09:00 - 13:15 and 14:00 - 18:00
  29/Nov/2024: 09:00 - 13:15 and 14:00 - 18:00

- **Program Overview**

	Lecture Hall B-201 and Online	Lecture Hall B-201 and Online
CET	**28 Nov 2024**	**29 Nov 2024**
09:00–10:00	**Welcome + Keynote**	**Keynote: Wei-Ning Hsu**
10:00–11:00	**B2 + C1**	**Keynote: Mohit Shridhar**
11:00–11:15	Coffee Break	Coffee Break
11:15–12:15	**A3 + A4**	**B1 + B4**
12:15–13:15	**A5 + A6**	**C4 + C7**
13:15–14:00	Lunch Break	Lunch Break
14:00–15:00	**C8 + C9**	**A1 + A2**
15:00–16:00	**B3 + B5**	**General Assembly**
16:00–16:15	Coffee Break	Coffee Break
16:15–17:15	**Z1/Z2 + Z3**	**Perspective Remarks**
17:15–18:00	**Demos**	
19:00–21:00	**Working Dinner** (Yu Garden)	**Dinner** (Hamburger Elbspeicher)

Thursday, 28 November 2024

Hamburg	Beijing	Project	Title
09:00 – 09:15	16:00 – 17:00	Opening	Prof. Dr. Mathias Fischer (Dean Dept. Informatics) and Prof. Dr. Jianwei Zhang (Speaker CRC/TRR 169): Welcome and Symposium Introduction
09:15 – 10:00	16:15 – 17:00	Keynote	tbd
10:00 – 11:00	17:00 – 18:00	B2 C1	Jun Zhu: Crossmodal inference by conjoining probabilistic and symbolic models Dan Zhang: Crossmodal active perception of human speech and its implication in social learning
			Coffee Break
11:15 – 12:15	18:15 – 19:15	A3 A4	Focko Higgen: Crossmodal learning in health and neurological disease: neurocomputational representation and therapeutical application Changshui Zhang, Yizhou Wang: Crossmodal representation facilitating robust robot behaviour Niklas Fiedler: Clothes Perception and Manipulation
12:15 – 13:15	19:15 – 20:15	A5 A6	Stefan Wermter: Neurorobotic models for crossmodal joint attention and social interaction Timo Gerkmann, Xiaolin Hu: Deep learning for robust audio-visual processing Julius Richter, Ehsan Yaghoubi, André Kelm: tbd
			Lunch Break (Mensa Informatikum)
14:00 – 15:00	21:00 – 22:00	C8 C9	Frank Steinicke, Simone Kühn, Lihan Chen: Crossmodal bindings and plasticity during visual-haptic interactions for novel forms of therapy Jan Gläscher: The role of mental models and sense of agency in learning crossmodal communicative acts
15:00 – 16:00	22:00 – 23:00	B3 B5	Michael Rose, Qiufang Fu: Neurocognitive mechanisms for transfer and generalization in implicit crossmodal learning Carina Yaap: tbd Fuchun Sun: Crossmodal transfer of dexterous manipulation skills Yuyang Tu: Tool Affordance 6D Pose Estimation Michael Görner: Self-supervised Exploration of Chordophones for Robotic Playing
			Coffee Break
16.15 – 17:15	23:15 – 00:15	Z1 Z2 Z3	Norman Hendrich: Report on Management and Coordination Alexander Maye: Report on Integrated Research Training Group Matthias Kerzel: Integration Initiatives for Model Software and Robotic Demonstrator Yannick Jonetzko: Robotic Platform for Physical Collaboration
17:15 – 18:00		Z3	Lab Demonstration (CV, HCI, LT, SP, TAMS, WTM labs)
19:00			Working Dinner Yu Garden · Feldbrunnenstraße 67 · 20148 Hamburg https://www.yugarden.hamburg/

Friday, 29 November 2024

Hamburg	Beijing	Project	Title
09:00 – 10:00	16:00 – 17:00	Keynote	Wei-Ning Hsu (Meta): **Large Scale Non-Autoregressive Audio Generative Models** Abstract: Audio generation technologies have advanced rapidly over the past few years. In addition to the improved quality, audio generation models have also become much more universal and controllable, allowing users to leverage prompts from various modalities. In this talk, I will discuss the keys that led to the breakthrough, and also share recent studies on large scale diffusion-style models for audio generation from the Audiobox team at Meta FAIR. These works span speech generation, self-supervised generative pre-training, universal audio generation, and video conditioned audio generation.
10:00 – 11:00	17:00 – 18:00	Keynote	Mohit Shridhar (Google Deepmind): **Acting with Vision and Language** Recent advancements in vision and natural language processing (NLP) have demonstrated remarkable progress through simple paradigms that scale with data. How can these methods be adapted for robotics? In this talk, I will explore three paradigms — detection, image generation, and language modeling — and discuss simple ways of applying them to robotics problems. By modifying the training objective to predict actions, I will demonstrate how robot learning can achieve the generalization performance seen in vision and NLP. Bio: Mohit is a Research Scientist at Google Deepmind. He received his PhD from the University of Washington under Prof. Dieter Fox. His research focuses on connecting vision, language, and robotics through unifying problem formulations.
			Coffee Break
11:15 – 12:15	18:15 – 19:15	B1 B4	Andreas Engel: Modulation of neural mechanisms underlying crossmodal predictions Andreas Engel, Guido Nolte, Xun Liu: Brain dynamics of top-down control over visual-auditory congruency
12:15 – 13:15	19:15 – 20:15	C4 C7	Cornelius Weber: Neurocognitive mechanisms for transfer and generalization in implicit crossmodal learning Ozan Özdemir, Jae Hee Lee: tbd. Chris Biemann: Crossmodal learning for improving human reading
			Lunch Break (Mensa Informatikum)
14:00 – 15:00	21:00 – 22:00	A1 A2	Patrick Bruns: Adaptation of multisensory processing to changing priors and sensory evidence Claus Hilgetag: Neural circuits for crossmodal memory Fatemeh Hadaeghi: tbd Li Dong: tbd
15:00 – 16:00	22:00 – 23:00		General Assembly
			Coffee Break

16.00 – 17:00	23:00 – 00:00		Jianwei Zhang: Perspective Remarks
18:30			Symposium Dinner: Hamburger Elbspeicher · Große Elbstraße 39 · 22767 Hamburg https://www.hamburger-elbspeicher.de

Speakers

confirmed as of 20/Nov/2024:
Fares Abawi
Philipp Allgeuer
Patrick Bruns
Tatia Buidze
Lihan Chen
Wenkai Chen
Lin Cong
Li Dong
Andreas Engel
Niklas Fiedler
Time Gerkmann
Jan Gläscher
Michael Görner
Jasper Güldenstein
Jan-Gerrit Habekost
Fatemeh Hadaeghi
Judith Hartfill
Norman Hendrich
Focko Higgen
Claus C Hilgetag
Carina Jaap
Yannick Jonetzko
Dionysia Kaziki
André Kelm
Matthias Kerzel
Jae Hee Lee
Shang-Ching Liu
Xun Liu
Jonas Maack
Alexander Maÿe
Wolfgang Menzel
Ozan Özdemir
Shiqun Qiguan
Julius Richter
Philipp Ruppel
Marleen Schoenfeld
Frank Steinicke
Yuyang Tu
Peng Wang
Xintong Wang
Cornelius Weber
Stefan Wermter
Ehsan Yaghoubi
Jianwei Zhang