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

CML Online Autumn School November 12 to December 18, 2020

- **Place**
  - Zoom online
- **Time**

  12. Nov. - 11. Dec. 2020, one 2-hour slot on each **Thursday** and **Friday**,

  9-11AM Germany Time, **4-6PM** China Time.
- **Overview**

CET	12. Nov.	13. Nov.	19. Nov.	20. Nov.	26. Nov.	27. Nov.	CST
9:00-9:40	**A2**	**A1**	**A4**	**B1**	**B2**	**C7**	16:00-16:40
9:40-10:20		**A5**	**A6**	**B4**	**C9**	**B3**	16:40-17:20
10:20-11:00	**C4**	**B3**	**B5**	**C1**		**A3**	17:20-18:00

CET	03. Dec.	10. Dec.	11. Dec.	CST
9:00-10:00	**Z1,Z2,Z3**	**C8**	**Christoph Kayser**	16:00-17:00
10:00-11:00	**General Assembly**	**Pierre-Yves Oudeyer**	**Micah Murray**	17:00-18:00

- **Schedule**
  - **Thursday, November 12, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:40	16:00-16:40	A2	**Neural circuits for crossmodal memory** Ji-Song Guan, Claus C. Hilgetag **Cooperative Inhibitions in the selection of engrams for crossmodal information storage** Speaker: Guangyu Wang, Ph.D. **Project A2 – Modelling parts** Speaker: Dong Li, Ph.D. **Discussion**
10:20-11:00	17:20-18:00	C4	**Neurocognitive models of crossmodal language learning** Cornelius Weber, Stefan Wermter, Zhiyuan Liu **Introduction** Speaker: Cornelius Weber **Compositionally generalizable spatial language grounding** Speaker: Jae Hee Lee **Embodied question answering to learn the relative Size of Objects in a 3D environment** Speaker: Mengdi Li **Commonsense-based VQA system** Speaker: Zheni Zeng **Distant supervision for scene graph generation** Speaker: Ao Zhang **Discussion**

- **Friday, November 13, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:40	16:00-16:40	A1	**Adaptation of multisensory processing to changing priors and sensory evidence** Patrick Bruns, Brigitte Röder, Xiaolan Fu **The interplay of audio-visual spatial Integration and recalibration** Speaker: Alexander Kramer **Discussion**
9:40-10:20	16:40-17:20	A5	**Neurorobotic models for crossmodal joint attention and social interaction** Stefan Wermter, Xun Liu **Experimental design and human participant responses for human robot interaction** Speaker: Di Fu, Hugo Cesar de Castro Carneiro **Detecting social cues, cross-modal integration, and application in robotics** Speaker: Fares Abawi, Nicolas Duczek **Discussion**
10:20-11:00	17:20-18:00	B3	**Neurocognitive mechanisms for transfer and generalization in implicit crossmodal learning** Qiufang Fu, Michael Rose **Multisensory transfer effects in rule-based and information integration category learning** Speaker: Xunwei Sun **Discussion**

- **Thursday, November 19, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-09:40	16:00-16:40	A4	**Crossmodal representation facilitating robust robot behaviour** Changshui Zhang, Yizhou Wang, Jianwei Zhang **Learning disentangled representation for 3D hand pose estimation** Speaker: Changming Xiao **Learning active object tracking in multi-agent games** Speaker: Fangwei Zhong **Learning neural manipulation policies from human demonstration** Speaker: Philipp Ruppel **Discussion**
09:40-10:20	16:40-17:20	A6	**Deep learning for robust audio-visual processing** Xiaolin Hu, Simone Frintrop, Timo Gerkmann **Attack on the practical speaker verification system using universal adversarial perturbations** Speaker: Shuning Zhao **Speech Enhancement with Stochastic Temporal Convolutional Networks** Speaker: Julius Richter **Deep learning on point cloud for 6D pose estimation for robotic applications** Speaker: Ge Gao **Discussion**
10:20-11:00	17:20-18:00	B5	**Crossmodal transfer of dexterous manipulation skills** Jianwei Zhang, Fuchun Sun **Cross-modal interaction via channel exchaing and tactile-visual simulations** Speaker: Yikai Wang **Robust skill learning via adversarial reinforcement learning** Speaker: Chao Yang **The option framework for hierarchical imitation on learning and long term operation tasks** Speaker: Mingxuan Jing **Mutimodal robot perception on robotic pouring** Speaker: Hongzhuo Liang **Discussion**

- **Friday, November 20, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:40	16:00-16:40	B1	**Modulation of neural mechanisms underlying crossmodal predictions** Andreas Karl Engel, Dan Zhang **Overview of project objectives and workplan** Speaker: Andreas Karl Engel **Studies on sequence prediction** Speaker: Peng Wang **Studies on temporal prediction** Speaker: Rebecca Burke **Modelling of prediction dynamics** Speaker: Alexander Maye **Discussion**
9:40-10:20	16:40-17:20	B4	**Brain dynamics of top-down control on crossmodal congruency** Xun Liu, Guido Nolte, Andreas Karl Engel **Overview of project objectives and workplan** Speaker: Xun Liu **The top-down control modulation to visual and auditory brain areas** Speaker: Guochun Yang, Zhenghan Li **Sensory capability and information integration independently explain the cognitive status of healthy older adults** Speaker: Florian Göschl **Discussion**
10:20-11:00	17:20-18:00	C1	**Crossmodal active perception of human speech and its implication in social learning** Dan Zhang, Bo Hong, Guido Nolte **Human cortical networking by frequency-specific coupling in resting and speech processingfuther presentation** Speaker: Yuxiang Yan, Postdoc fellow **Speech frequency-following response in human auditory cortex is more than a simple tracking.futher presentation** Speaker: Ning Guo, Postdoc fellow **Discussion**

- **Thursday, November 26, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:40	16:00-16:40	B2	**Crossmodal inference by conjoining probabilistic and symbolic models** Jun Zhu, Jan Philipp Gläscher **Crossmodal inference by conjoining probabilistic and symbolic models** Speaker: Jun Zhu **Boosting Visual Reasoning with a Probabilistic Neural-Symbolic Model Regularized with First-Order Logics** Speaker: Ke Sun **Discussion**
9:40-10:20	16:40-17:20	C9	**The role of mental models and sense of agency in learning crossmodal communicative acts** Jan Philipp Gläscher, Xiaolan Fu **Modeling of theory of mind during the tacit communication Game** Speaker: Tatia Buidze, Jan Gläscher **The sense of agency in human-robot and human-human interactions** Speaker: Ke Zhao **Discussion**

- **Friday, November 27, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:40	16:00-16:40	C7	**Crossmodal learning for improving human reading** Xingshan Li, Qingqing Qu, Chris Biemann **Introduction** Speaker: Chris Biemann **Progress on Crossmodal Transfer** Speaker: Jiayu Liu **Current Status on Crossmodal Embeddings** Speaker: Xintong Wang **Context-Sensitive Eye-Movement Selection** Speaker: Özge Alaçam **Discussion**
9:40-10:20	16:40-17:20	B3	**Neurocognitive mechanisms for transfer and generalization in implicit crossmodal learning** Qiufang Fu, Michael Rose **Neural correlates of the crossmodal correspondence effect** Speaker: Carina Bauer **The functional role of the posterior parietal cortex during incidental multimodal episodic memory formation** Speaker: Julia Jablonowsi **Discussion**
10:20-11:00	17:20-18:00	A3	**Crossmodal learning in health and neurological disease: neurocomputational representation and therapeutic application** Christian Gerloff, Gui Xue **Discussion**

- **Thursday, December 03, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-9:20	16:00-16:20	Z1+Z2	**Z1: Management and coordination / Z2: Integrated research training group** Jiangwei Zhang, Fuchun Sun / Andreas Karl Engel, Jianwei Zhang, Xiaolan Fu **Z1: Management and coordination** Speaker: Norman Hendrich **Z2: Integrated research training group** Speaker: Alexander May **Discussion**
9:20-10:00	16:20-17:00	Z3	**Integration initiatives for model software and robotic demonstrators** Jiangwei Zhang, Stefan Wermter, Fuchun Sun **Social HRI Laboratory and Robotic Platform for Social Communication** Speaker: Matthias Kerzel **Online trajectory optimization for high-DOF robots and tactile sensor skin for robots and wearables** Speaker: Philipp Ruppel **Social Communication Project** Speaker: Burhan Hafez **Robot hand-arm teleoperation system based on vision and IMU** Speaker: Shuang Li **Robotic platform for physical collaboration** Speaker: Yannick Jonetzko **Discussion**
10:00-11:00	17:00-18:00		**General Assembly**

- **Thursday, December 10, 2020**

Hamburg Time	Beijing Time	Project	Title
9:00-10:00	16:00-17:00	C8	**Crossmodal bindings and plasticity during visual-haptic interaction for novel forms of therapy** Lihan Chen, Simone Kühn, Frank Steinicke, Kunlin Wei **Virtual Hand Realism and its Influence on Sense of Agency** Speaker: Judith Hartfill **Cutaneous rabbit" illusion as a tool to study body representations** Speaker: Xiao Lei **The influence of the integration of exteroception and interoception on somatosensory processing** Speaker: Wenxiao Gong **The Asymmetric Switch Cost between Subitizing and Estimation in Tactile Modality** Speaker: Chunmiao Lou **Pilot studies for preparing fMRI experiments on VR-induced embodiment changes** Speaker: Yiyang Cai **Discussion**
10:00-11:00	17:00-18:00		**Developmental Machine Learning, Curiosity and Deep RL** Speaker: Prof. Dr. Pierre-Yves Oudeyer

- **Friday, December 11, 2020**

Hamburg Time	Beijing Time	Title
9:00-10:00	16:00-17:00	**The role of causal inference in multisensory perception** Speaker: Prof. Dr. Christoph Kayser, University of Bielefeld
10:00-11:00	17:00-18:00	**Multisensory processes as a scaffold for perception, cognition, and rehabilitation** Speaker: Prof. Dr. Micah M. Murray, University Hospital Center and University of Lausanne

- **TRR 169 Main Participants**

Abawi, Fares (A5, Speaker)
Alaçam, Özge (C7, Speaker)
Bauer, Carina (B3, Speaker)
Biemann, Chris (C7, PI)
Bruns, Patrick (A1, PI)
Buidze, Tatia (C9, PI)
Burke, Rebecca (B1, Speaker)
Cai, Yiyang (C8, Speaker)
Chen, Lihan (C8, PI)
Duczek, Nicolas (A5, Speaker)
Engel, Andreas (B1, PI)
Frintrop, Simone (A6, PI)
Fu, Di (A5, Speaker)
Fu, Qiufang (B3, PI)
Fu, Xiaolan (C9, PI)
Ge, Gao (A6, Speaker)
Gerkmann, Timo (A6, PI)
Gerloff, Christian (A3)
Gläscher, Jan (C9, PI)
Gong Wenxiao (C8, Speaker)
Göschl, Florian (B4, Speaker)
Guan, Ji-Song (A2, PI)
Guo, Ning (C1, Speaker)
Hafez, Burhan (Z3, Speaker)
Hartfill Judith (C8, Speaker)
Hendrich, Norman (Z2, Speaker)
Hugo Cesar de Castro Carneiro (A5, Speaker)
Hilgetag, Claus (A2, PI)
Hong, Bo (C1, PI)
Hu, Xiaolin (A6, PI)
Jablonowsi, Julia (B3, Speaker)
Jing, Mingxuan (B5, Speaker)
Jonetzko, Yannick (Z3, Speaker)
Kerzel, Matthias (Z3, Speaker)
Kühn, Simone (C8, PI)
Lee, Jae Hee (C4, Speaker)
Lei Xiao (C8, Speaker)
Li, Dong (A2, Speaker)
Li, Mengdi (C4, Speaker)
Li, Shuang (Z3, Speaker)
Li, Xingshan (C7, PI)
Li, Zhenghan (B4, Speaker)
Liang, Hongzhuo (B5, Speaker)
Liu, Jiayu (C7, Speaker)
Liu, Xun (B4, PI)
Liu, Zhiyuan (C4, PI)
Lou Chunmiao (C8, Speaker)
Maye, Alexander (Z2, Speaker)
Nolte, Guido (B4, PI)
Taesler, Philipp (B3, PI)
Qu, Qingqing (C7, PI)
Richter, Julius (A6, Speaker)
Rose, Michael (B3, PI)
Röder, Brigitte (A1, PI)
Ruppel, Philipp (A4, Speaker)
Steinicke, Frank (C8, PI)
Sun, Fuchun (Coordinator)
Sun, Ke (B2, Speaker)
Sun, Xunwei (A5, Speaker)
Weber, Cornelius (C4, PI)
Wei, Kunlin (C8, PI)
Wang, Guangyu (A2, Speaker)
Wang, Peng (B1, Speaker)
Wang, Xintong (C7, Speaker)
Wang, Yikai (B5, Speaker)
Wang, Yizhou (A4, PI)
Wermter, Stefan (A5, PI)
Xiao, Changming (A4, Speaker)
Xue, Gui (A3, PI)
Yan, Yuxiang (C1, Speaker)
Yang , Chao (B5, Speaker)
Zeng, Zheni (C4, Speaker)
Zhang, Ao (C4, Speaker)
Zhang, Changshui (A4, PI)
Zhang, Dan (C1, PI)
Zhang, Jianwei (Coordinator)
Zhao, Ke (C9, Speaker)
Zhao, Shuning (A6, Speaker)
Zhong, Fangwei (A4, Speaker)
Zhu, Jun (B2, PI)