Felix Benedikt **Dollack**

HUMAN INFORMATICS RESEARCHER · SOFTWARE ENGINEER

Nara, JAPAN

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Summary

Software engineer and human informatics researcher. Currently wrangling location and emotion data. Previously working on real-time behavior analysis for healthcare settings. Five years of experience specializing in human-computer interaction, affective computing and data analysis. Keen to design technology that can **enhance human capabilities and experiences** by learning from human perception and behavior.

Work Experience

since April 2022 — **Postdoctoral Researcher**

Kyoto, Japan — **Kyoto Sangyo University**

- Development of a recommendation system for safe and enjoyable e-bike routes.
- Real-time advertising system based on user trajectories and location.
- Working with Flutter, React, Google Maps API, Azure Cognitive Service, Python and XGBoost.

Sep 2020 - April 2022 — **Chief Technology Officer**

Tokyo, Japan — **Smart Care Tech Co., Ltd.**

- Design and development of a real-time human behavior analysis system.
- In-house tooling for recording management and video event querying.
- Development of web and Android applications for personalized medication.
- Supervision and guidance of two junior software developers.
- Work is performed with Linux, Python, Flask, Docker, Redis, PostgreSQL, PyTorch, Tensorflow, TensorRT and Kotlin for Android.

Aug 2019 - Mar 2020 — **Research Intern in Affective Computing**

Atsugi, Japan — **NTT Communication Science Laboratories**

- Designing and conducting experiments with human participants.
- Collecting and analyzing data with multimodal recording systems using sensors including eye tracking, electro-encephalography (Biosemi), electrooculography and electromyography (Shimmer Sensing).
- Experiments were performed with a mix of custom C++ and Matlab, while analysis was done with Matlab and Python.

Dez 2015 – Mar 2017 — **Software engineer**

Erlangen, Germany — **Fraunhofer Institute for Integrated Circuit (IIS)**

- Implementation of the Advanced Audio Codec (AAC) for Bluetooth in Android smartphones.
- Customer support in porting AAC to different embedded platforms (ARM, Xtensa, etc.)
- Basic quality assurance through stress-testing of the in-house code base.
- Work was done with Bash and C on linux machines. Additionally, productivity and automation tools like Jenkins and Jira were used.

Aug 2014 - Mar 2015 — **Research Assistant in Sound Localisation**

Oldenburg, Germany — **Fraunhofer Institute for Digital Media Technology (IDMT)**

- Implementation of different state-of-the-art localisation algorithms.
- Comparison of different localisation algorithms.
- Design and implementation of a GUI for algorithm comparison.
- All tasks were performed with Matlab.

Education

2017 - 2020 | Tsukuba, Japan
Human Informatics (PhD)
School of Integrative and Global Majors. University of Tsukuba.

2013 - 2015 | Oldenburg, Germany
Hearing Technology and Audiology (MSc)
School of Medicine and Health Sciences. Department of Medical Physics and Acoustics. University of Oldenburg.

2009 - 2013 | Oldenburg, Germany
Hearing Technology and Audiology (BSc)
School of Construction, Geoinformation and Health Sciences. Department of Technology and Health. Jade University of Applied Sciences Oldenburg.

Skills

Programming Languages Bash, C/C++, Dart, HTML/CSS/JS, Java, Kotlin, Matlab, Python, SQL.

Software tools Android, Azure Cognitive Services, Docker, Firebase, Flask, Flutter, Git, Google Maps API, Jenkins, Jira, Kafka, Oculus SDK, PyTorch, React, React-Native, Redis, Robot Operating System (ROS), Tensorflow, TensorRT, UX/UI design, Unity, XGBoost.

Soft skills Adaptability, Effective communication, Leadership, Problem-solving, Responsibility, Time management, Teamwork

Languages **German** (native), **English** (working proficiency), **Japanese** (limited working proficiency), .

Grants

Research Grants

2019 **Challenge grant,** Project: El-Astrocade. University of Tsukuba. Tsukuba, Japan. 5 000 USD

Scholarships

2017 – 2020 **Special Fellows Scholarship,** University of Tsukuba. Tsukuba, Japan. 82 000 USD

References

Academic

Prof. Kenji Suzuki, kenji@ieee.org, University of Tsukuba, Japan

Prof. Jutta Kretzberg, jutta.kretzberg@uol.de, University of Oldenburg, Germany

Industry

Mr. Nobumasa Ohmori, ohmori@mct.or.jp, Smart Care Tech and Medical Corporation Tatsuoka, Japan

Mr. Marc Gayer, marc.gayer@iis.fraunhofer.de, Fraunhofer Institute of Integrated Circuits, Germany

Publications

2019 **Dollack, F.**, Perusquía-Hernández, M., Kadone, H., Suzuki, K. “Gaze and head anticipation during locomotion with auditory instruction in the presence and absence of visual input”. Frontiers in Human Neuroscience Vol. 13:293. doi: 10.3389/fnhum.2019.00293

2022 Yamaguchi F., **Dollack F.**, Ueda M., Nakajima S. ”Feature Relevance Analysis of Product Reviews to Support Online Shopping”. 24th International Conference on Information Integration and Web Intelligence (iiWAS2022), Italy, November 2022, 12 pages.

2022 Yamauchi K., Siriaraya P., Li D., **Dollack F.**, Kawai Y., Nakajima S. ”Validation of a neighborhood spot evaluation method for walking route recommendation”. 8th International Conference on Health Informatics and Medical Systems (HIMS), Las Vegas, USA, July 2022, 10 pages.

2021 Perusquía-Hernández, M., **Dollack, F.**, Tan, C. K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. “Smile Action Unit detection from distal wearable Electromyography and Computer Vision”. 16th IEEE International Conference on Automatic Face and Gesture Recognition. [FG2021]

2021 Gómez Jáuregui, D.A., **Dollack, F.**, Perusquía-Hernández, M. “Robot mirroring: Improving well-being by fostering empathy with an artificial agent representing the self”. Functions of emotions for socially interactive agents workshop adjunct to the 9th Affective Computing and Intelligent Interaction Conference. Accepted.

2020 Perusquía-Hernández, M., Gómez Jáuregui, D. A., Cuberos-Balda, M., Paez-Granados, D. F., **Dollack, F.**, Salazar, J. V. “Robot Mirroring: Promoting Empathy with an Artificial Agent by Reflecting the User’s Physiological Affective States”. Proceedings of the 29th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN), Naples, Italy, September 2020, 6 pages.

2019 **Dollack, F.**, Perusquía-Hernández, M., Kadone, H., Suzuki, K. “Auditory Locomotion Guidance System For Spatial Localization”. 2019 International Symposium on Micro-NanoMechatronics and Human Science (MHS), pp. 1-5.

2017 **Dollack, F.**, Imbery, C., Bitzer, J. “On the Analysis of Acoustic Distance Perception in a Head Mounted Display”, Proceedings of the International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments (ICAT-EGVE), Adelaide, Australia, November 2017, 4 pages. doi: 10.2312/egve.20171338

Publications without peer-review

2021 Perusquía-Hernández, M., **Dollack, F.**, Tan, C.K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. “Facial distal electromyography synergy analysis uncovers the relevance of the Duchenne marker in spontaneous smile production”. Society of Affective Science conference. 2021. Oral presentation. [SAS2021a]

2020 Perusquía-Hernández, M., **Dollack, F.**, Tan, C. K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. “Facial movement synergies and Action Unit detection from distal wearable Electromyography and Computer Vision”. arXiv:2008.08791.

2019 **Dollack, F.**, Perusquía-Hernández, M., Kadone, H., Suzuki, K. “Auditory Locomotion Guidance System For Spatial Localization”. Proceedings of International Symposium of Micro-NanoMechatronics and Human Science (MHS), pp. 49-52, Nagoya, Japan, December 2019.

2016 **Dollack, F.**, Imbery, C., van de Par, S., Bitzer, J. “Influence of visual stimulation on distance perception and externalisation”. Proceedings of the DAGA 2016, pp. 669-672, Aachen, Germany, March 2016.

2013 Hansen, M., **Dollack, F.**, Raufer, S., Grahlman, H.-L., Eberlei, G. “Speech intelligibility in realistic listening situations for different numbers, azimuths and movement of speech or noise maskers”. Proceedings of the AIA-DAGA 2013, including the 40th Italian (AIA) Annual Conference on Acoustics, pp. 425-427.

Conference presentations without proceedings

2021 Perusquía-Hernández, M., **Dollack, F.**, Tan, C.K., Namba, S., Ayabe-Kanamura, S., Suzuki, K. “Facial distal electromyography synergy analysis uncovers the relevance of the Duchenne marker in spontaneous smile production”. Society of Affective Science conference. 2021. Oral presentation.

2021 Perusquía-Hernández, M., **Dollack, F.**, Ayabe-Kanamura, S., Suzuki, K. “Solitary and social smile production in congenital blindness”. Society of Affective Science conference. 2021. Oral presentation.

Posters

2019 **Dollack, F.**, Perusquía-Hernández, M., Kadone, H., Suzuki, K. “Effect of Voluntary Gaze Movement on Gait Steering Control”. International Society of Posture and Gait Research (ISPGR) World Congress.

2019 **Dollack, F.**, Kadone, H., Perusquía-Hernández, M., Suzuki, K. “Head Anticipation during Auditory Instructed Locomotion”. International Society of Posture and Gait Research (ISPGR) World Congress.

Theses

2020 **Dollack, F.**, “Behavioural understanding of human spatial perception and navigation in auditory space”. Ph.D. Thesis. Supervised by: Suzuki, K.

2015 **Dollack, F.**, “Investigation on the human performance at identifying facing angle with respect to acoustic externalization and presentation of different complex visual stimuli”. Master thesis. Supervised by: Bitzer, J. and van de Par, S.

2013 **Dollack, F.**, “Influence of the placing of a circular microphone array on the results of acoustic direction of arrival estimation”. Bachelor thesis. Supervised by: Wallhoff, F. and Gerlach, S.