

Ozan Caglayan

Professional Experience

- 2019- **Research Associate**, *Department of Computing*, Imperial College, London, UK.
Multi-modal Context Modelling for Machine Translation
- 2017–2019 **Engineer**, *Informatics Lab*, Le Mans University, France.
Multimodal Multilingual Continuous Representation for Human Language Understanding (M2CR)
- Summer 2018 **Visiting**, *Center for Language & Speech Processing*, Johns Hopkins University, USA.
JSALT Workshop: Grounded Sequence-to-Sequence Team
- 2012–2017 **Research/Teaching Assistant**, *Galatasaray University*, Turkey.
Teaching assistant for undergraduate courses: *Algorithms and C Programming*, *Operating Systems*, *Parallel Programming*, *Microprocessors*.
- Summer 2013 **Intern**, *Google Summer of Code 2013*, Advisor: Michael D. Roth (IBM).
Integration of copy/paste ability between QEMU supervisor and guests.
- Summer 2012 **Intern**, *Google Summer of Code 2012*, Advisor: Luis R. Rodriguez (Qualcomm).
Development and packaging of Linux Kernel compatibility layer for drivers.
- 2007–2012 **Researcher**, *Scientific & Technological Research Council of Turkey (TUBITAK)*.
Pardus Linux Distribution
Developed various components of Pardus Linux Distribution, maintained packages including Linux kernel, drivers, connectivity.
- Summer 2007 **Intern**, *Scientific & Technological Research Council of Turkey (TUBITAK)*.
Pardus Linux Distribution
Improved the Python codebase of continuous build servers and developed a web interface.
- Summer 2006 **Intern**, *Scientific & Technological Research Council of Turkey (TUBITAK)*.
Optoelectronics Laboratory
Developed an in-house C library by implementing several image processing algorithms for edge detection, color correction, histogram operations and sharpening.

Education

- 2014–2019 **PhD. Computer Science**, *Le Mans University*, France.
Topic: Multimodal Neural Machine Translation
- 2011–2014 **MSc. Computer Engineering**, *Galatasaray University*, Turkey, *GPA 3.93/4.0*.
Topic: A Portable and Embedded SSVEP BCI system: emBCI
- 2004–2008 **BSc. Computer Engineering**, *Galatasaray University*, Turkey, *GPA 3.2/4.0*.
- 2007 **Erasmus Exchange**, *Université Joseph Fourier*, Grenoble/France.
- 1996–2004 **High School**, *Lycée Saint-Joseph*, Istanbul/Turkey, *GPA 4.4/5.0*.

Research Interests

Deep Neural Networks, Neural Machine Translation, Speech Recognition, Image Captioning, Multimodal Understanding.
EEG-based Brain-computer Interfaces, Signal Processing.

Computer Skills

C, C++, Python, NumPy, PyTorch, Matlab/Octave, Arduino & Processing.
Basic web skills, HTML, CSS, Flask.

Spoken Languages

Turkish (native), French (fluent), English (fluent)

Workshops Attended

- 01/2019 Joint Processing of Language and Visual Data for Better Automated Understanding, Schloss Dagstuhl/Germany
- 06/2018 Fifth Frederick Jelinek Memorial Summer Workshop, Baltimore/USA
- 04/2018 Master Class on Human Language Understanding (CHIST-ERA), Paris/France
- 10/2016 Mathematical Foundations of Artificial Intelligence, Nesin Matematik Koyu, Sirince/Turkey
- 10/2015 Deep Learning for Machine Translation Winterschool, Dublin/Ireland
- 08/2015 DTU Deep Learning Summer School, Copenhagen/Denmark
- 02/2014 Berlin BCI Winterschool on Neurotechnology, Berlin/Germany
- 07/2012 International Summer School and Workshop on Brain Dynamics, Turunc/Turkey
- 05/2012 State-of-the-art in Signal and Image Processing, Nesin Matematik Koyu, Sirince/Turkey

Software Projects

- Python/Flask Simple web interface for Multimodal MT Visualization
<https://github.com/ozancaglayan/mmt-ui>
- Python Neural Machine Translation in PyTorch
<https://github.com/lium-1st/nmtpytorch>
- Python Neural Machine Translation in Theano
<https://github.com/lium-1st/nmtpy>
- C/C++ Continuous Space Language and Translation Modeling Toolkit
<https://github.com/hschwenk/cs1m-toolkit>
- Python Emotiv EEG Data Acquisition Library
<https://github.com/ozancaglayan/python-emotiv>

Hobbies

Photography, Guitar & Piano, Films, Table tennis & pool

Publications

- 2020 Specia, L. et al. (18 authors) *Grounded Sequence to Sequence Transduction*, Article to appear at IEEE Journal Of Selected Topics In Signal Processing (JSTSP).
- 2020 Sulubacak, U.; Caglayan, O.; Grönroos, S.A.; Rouhe, A.; Elliott, D.; Specia, L.; and Tiedemann J. *Multimodal Machine Translation through Visuals and Speech*, Article to appear at MT Journal.
- 2019 Wu, Z.; Caglayan, O.; Ive, J.; Wang, J.; and Specia, L. *Transformer-based Cascaded Multimodal Speech Translation*, 16th International Workshop on Spoken Language Translation (IWSLT) 2019.
- 2019 Caglayan, O.; Madhyastha, P.; Specia, L.; and Barrault L. *Probing the Need for Visual Context in Multimodal Machine Translation*, 2019 Conference of the North American Chapter of the Association for Computational Linguistics (NAACL) **Best short paper**.

- 2018 Caglayan, O.; Sanabria, R.; Palaskar, S.; Barrault, L.; and Metze, F. *Multimodal Grounding for Sequence-to-Sequence Speech Recognition*, 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).
- 2018 Sanabria, R.; Caglayan, O.; Palaskar, S.; Elliott, D.; Barrault, L.; Specia, L.; and Metze, F. *How2: A Large-scale Dataset for Multimodal Language Understanding*, Workshop on Visually-Grounded Interaction and Language (ViGIL), NeurIPS 2018.
- 2018 Caglayan, O.; Bardet, A.; Bougares, F.; Barrault, L.; Wang, K.; Masana, M.; Herranz, L.; and van de Weijer, J. *LIUM-CVC Submissions for WMT18 Multimodal Translation Task*, In Proceedings of the Third Conference on Machine Translation, Volume 2: Shared Task Papers, Brussels, Belgium, October 2018. Association for Computational Linguistics.
- 2017 Rougier, N.P et al. (2017) *Sustainable computational science: the ReScience initiative*, PeerJ Computer Science 3:e142.
- 2017 Caglayan, O.; García-Martínez, M. Bardet, A.; Aransa, W.; Bougares, F.; and Barrault, L. *NMTPY: A Flexible Toolkit for Advanced Neural Machine Translation Systems*, In Prague Bull. Math. Linguistics, 109: 15–28. 2017.
- 2017 García-Martínez, M.; Caglayan, O.; Aransa, W.; Bardet, A.; Bougares, F.; and Barrault, L. *LIUM Machine Translation Systems for WMT17 News Translation Task*, In Proceedings of the Second Conference on Machine Translation, Volume 2: Shared Task Papers, Copenhagen, Denmark, September 2017. Association for Computational Linguistics .
- 2017 Caglayan, O.; Aransa, W.; Bardet, A.; García-Martínez, M.; Bougares, F.; Barrault, L.; Masana, M.; Herranz, L.; and van de Weijer, J. *LIUM-CVC Submissions for WMT17 Multimodal Translation Task*, In Proceedings of the Second Conference on Machine Translation, Volume 2: Shared Task Papers, Copenhagen, Denmark, September 2017. Association for Computational Linguistics.
- 2016 Caglayan, O.; Barrault, L.; and Bougares, F. *Multimodal Attention for Neural Machine Translation*, arXiv preprint arXiv:1609.03976.
- 2016 Caglayan, O.; Aransa, W.; Wang, Y.; Masana, M.; García-Martínez, M.; Bougares, F.; Barrault, L.; and van de Weijer, J. *Does Multimodality Help Human and Machine for Translation and Image Captioning?*, In Proceedings of the First Conference on Machine Translation, Berlin, Germany, August 2016. Association for Computational Linguistics.
- 2013 Caglayan, O.; and Arslan, R. B. *Humanoid Robot Control with SSVEP on Embedded System*, In Proceedings of the Fifth International Brain-Computer Interface Meeting, California/USA.
- 2013 Caglayan, O.; and Arslan, R. B. *Robotic Arm Control With Brain Computer Interface Using P300 and SSVEP*, IASTED International Conference Biomedical Engineering (BioMed 2013), Innsbruck/Austria.