



David W. Romero

PHD STUDENT IN
EFFICIENT DEEP LEARNING

BIOGRAPHY

I am a 3rd year PhD Student at the Vrije Universiteit Amsterdam, supervised by [Erik Bekkers](#), [Jakub Tomczak](#) and [Mark Hoogendoorn](#). Currently, I am a Research Intern at Qualcomm AI Research.

My research is focused on **data efficiency**, **computation efficiency** and **parameter efficiency** aspects of Deep Learning models.

I am particularly interested in **neural architectures with extensive parameter sharing** such as **Continuous kernel CNNs**, **Group equivariant networks** and **Self-attention networks**. **Continuous Kernel CNNs** are a new family of neural networks with interesting efficiency properties for which I recently received the [Qualcomm Innovation Fellowship Europe](#).

In my free time I like to learn new things (e.g. about coffee, carpentry, wine, ...) and play basketball.

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The Netherlands

WORK EXPERIENCE

- AI Research Intern** 2021 - ...
Qualcomm AI Research / Amsterdam, NL
- Research Consultant (3 Months)** 2021 - 2021
Mitsubishi Electrical Research Laboratories / Cambridge, MA (Remote)
- R&D Computer Vision Developer** 2017 - 2018
Corning Optical Communications GmbH / Berlin, DE
Development of a computer vision-aided automated coupling station (20h/w).
- Intern – Bachelor Thesis** 2015 - 2016
Atotech Deutschland GmbH / Berlin, DE
Construction of an automated coating plant prototype for electroplating applications.

EDUCATION

- PhD. In Efficient Deep Learning** 2018 - ...
Vrije Universiteit Amsterdam / Amsterdam, NL
- MSc. Computational Engineering Sciences** 2016 - 2018
Technische Universität Berlin / Berlin, DE
Emphasis: Computer Vision, Machine Learning, Automation, Optimization
Grade: ~ 91/100 [Among 10% best graded graduates]
- BSc. Mechatronics Engineering (5-yrs degree)** 2010 - 2016
Universidad Nacional de Colombia / Bogotá, CO
- Exchange Year in Mechatronics Engineering** 2014 - 2015
Gottfried Wilhelm Leibniz Universität Hannover / Hannover, DE

PUBLICATIONS

- D.W. Romero***, R.J. Brintjes*, J.M. Tomczak, E.J. Bekkers, M. Hoogendoorn, J. van Gemert, [FlexConv: Continuous Kernel Convolution With Differentiable Kernel Sizes](#), [under submission], 2021.
- D.W. Romero**, S. Lohit, [Learning Equivariances and Partial Equivariances From Data](#), [under submission], 2021.
- D.W. Romero**, A. Kuzina, E.J. Bekkers, J.M. Tomczak, M. Hoogendoorn, [CKConv: Continuous Kernel Convolution For Sequential Data](#), ArXiv Preprint, 2021.
- D.W. Romero**, J.B. Cordonnier, [Group Equivariant Stand-Alone Self-Attention For Vision](#), International Conference on Learning Representations (ICLR), 2021.
- D.W. Romero**, E.J. Bekkers, J.M. Tomczak, M. Hoogendoorn, [Wavelet Networks: Scale Equivariant Learning From Raw Waveforms](#), ArXiv Preprint, 2020.
- D.W. Romero**, E.J. Bekkers, J.M. Tomczak, M. Hoogendoorn, [Attentive Group Equivariant Convolutional Networks](#), International Conference on Machine Learning (ICML), 2020.
- D.W. Romero**, M. Hoogendoorn, [Co-Attentive Equivariant Neural Networks: Focusing Equivariance on Transformations Co-Occurring in Data](#), International Conference on Learning Representations (ICLR), 2020.

AWARDS

- Winner Qualcomm Innovation Fellowship Europe** 2021
Proposal: "Continuous Kernel Convolutions for Machine Learning"
Vrije Universiteit Amsterdam / Amsterdam, NL
- Finalist Qualcomm Innovation Fellowship Europe** 2020
Vrije Universiteit Amsterdam / Amsterdam, NL
- Member of the Mejores Promedios Exchange Program** 2013
Universidad Nacional de Colombia / Bogotá, CO
Exchange program consisting of the best performing students of the Engineering Faculty.
- Scholarship Grantee** 2012
Universidad Nacional de Colombia / Bogotá, CO
Granted to the best 15 students of the Engineering Faculty
- Among the 0.2% Best Performing Students on ICFES Exam of Colombia. Best of the City** 2009
Acknowledged by the City Council (Garzón, Huila)

LANGUAGE SKILLS

Dutch
C1

English
C1

German
B2/C1

Spanish
C2