



# JOAQUIM CAMPOS

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: LISBON, PORTUGAL, ON 10 FEBRUARY 1996  
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## WORK EXPERIENCE

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PRESENT 2022 AUG	CO-FOUNDER AND CTO AT <a href="#">RADIOBOOKS</a> . <i>Converting books into audiobooks automatically using Artificial Intelligence</i> <ul style="list-style-type: none"><li>DESIGNED AND CREATED AN APP FOR REVISING AI-GENERATED AUDIO (LAUNCH: MAY 2023).</li></ul>
2021 SEP 2020 APR	RESEARCH ASSISTANT TOPIC: <i>Supervised Learning with Sparsity-Promoting Regularization</i> BIOMEDICAL IMAGING GROUP, École Polytechnique Fédérale de Lausanne, LAUSANNE, SWITZERLAND. SUPERVISOR: Prof. Michael Unser. <ul style="list-style-type: none"><li>DEVELOPED A NOVEL FRAMEWORK TO LEARN THE ACTIVATION FUNCTIONS OF A NEURAL NETWORK;</li><li>DESIGNED A SPLINE-BASED SUPERVISED LEARNING METHOD WHICH CONSTRUCTS PIECEWISE-LINEAR MODELS WITH FEW REGIONS (SPARSE).</li></ul>
2018 AUG 2019 MAR	RESEARCH INTERN TOPIC: <i>Image and Video Compression using Deep Learning</i> Disney Research, ZURICH, SWITZERLAND. SUPERVISORS: Dr. Christopher Schoers and Dr. Abdelaziz Djelouah. <ul style="list-style-type: none"><li>DEVELOPED THE FIRST CONTENT-ADAPTIVE NEURAL IMAGE COMPRESSION SCHEME;</li><li>AIDED IN THE CONSTRUCTION OF A STATE-OF-THE-ART NEURAL VIDEO COMPRESSION FRAMEWORK.</li></ul>

## UNIVERSITY EDUCATION

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2020 FEB 2016 SEP	<p>MSC IN <b>Communication Systems</b>.</p> <p>SPECIALIZATION: <b>Signals, Images and Interfaces</b>.</p> <p>École Polytechnique Fédérale de Lausanne, SCHOOL OF COMPUTER SCIENCE AND COMMUNICATION SCIENCES, LAUSANNE, SWITZERLAND.</p> <p>GRADE: <b>5.67/6.00</b>.</p> <p>FOCUS ON SIGNAL PROCESSING AND ARTIFICIAL INTELLIGENCE, AND THEIR APPLICATIONS TO IMAGING AND AUDIO. MASTER'S THESIS: <i>Higher-Order Regularization Methods for Supervised Learning</i>. BIOMEDICAL IMAGING GROUP.</p>
2016 JUL 2013 SEP	<p>BSC IN <b>Electrical and Computer Engineering</b>.</p> <p>Universidade de Lisboa, Instituto Superior Técnico, LISBON, PORTUGAL.</p> <p>GRADE: <b>16.4/20.0</b></p>

## TEACHING EXPERIENCE

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CURRENT 2020 SEP	<p>SUPERVISION OF MASTER SEMESTER PROJECTS</p> <p>École Polytechnique Fédérale de Lausanne, LAUSANNE, SWITZERLAND</p> <p>CO-SUPERVISOR OF TWO MASTER SEMESTER PROJECTS ON "LIPSCHITZ CONSTRAINED GENERATIVE ADVERSARIAL NETWORKS". ACCESS AT <a href="http://bigwww.epfl.ch/teaching/projects/subject.html#id_2540">http://bigwww.epfl.ch/teaching/projects/subject.html#id_2540</a>.</p>
CURRENT 2020 SEP	<p>TEACHING ASSISTANCE IN THE COURSES <b>MICRO-310/11: Signals and Systems I/II</b></p> <p>École Polytechnique Fédérale de Lausanne, LAUSANNE, SWITZERLAND</p> <p>TAUGHT BY Prof. Michael Unser TO THE <i>Life Sciences</i> AND <i>Microengineering</i> SECTIONS.</p> <p>APPROXIMATE NUMBERS PER SEMESTER: 250 STUDENTS; 65 H OF GUIDANCE OF EXERCISE SESSIONS AND INTERACTION WITH STUDENTS ON THE COURSE FORUM; 60 H OF CLASS PREPARATION; AND 40 H OF EXAM SUPERVISION AND GRADING.</p>

## LANGUAGES

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MOTHER TONGUE:	PORTUGUESE
PROFESSIONAL (C1):	ENGLISH
ADVANCED (B2):	SPANISH
CONVERSATIONAL (B1):	FRENCH

## OTHER SKILLS

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PRIMARY TECHNICAL SKILLS:	KNOWLEDGE OF BOTH THEORETICAL AND PRACTICAL ASPECTS OF SIGNAL PROCESSING; EXPERIENCE WITH NEURAL NETWORKS.
PROGRAMMING:	C, PYTHON, FASTAPI, PYTORCH, BASH, MATLAB, $\LaTeX$

## PUBLICATIONS: SCIENCE

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- [1] A. GOUJON, J. CAMPOS, AND M. UNSER, “STABLE PARAMETRIZATION OF CONTINUOUS AND PIECEWISE-LINEAR FUNCTIONS,” *arXiv:2203.05261*, MAR. 2022.
- [2] J. CAMPOS, S. AZIZNEJAD, AND M. UNSER, “LEARNING OF CONTINUOUS AND PIECEWISE-LINEAR FUNCTIONS WITH HESSIAN TOTAL-VARIATION REGULARIZATION,” *IEEE Open Journal of Signal Processing*, VOL. 3, PP. 36–48, JAN. 2022.
- [3] P. BOHRA, J. CAMPOS, H. GUPTA, S. AZIZNEJAD, AND M. UNSER, “LEARNING ACTIVATION FUNCTIONS IN DEEP (SPLINE) NEURAL NETWORKS,” *IEEE Open Journal of Signal Processing*, VOL. 1, PP. 295–309, NOV. 2020.
- [4] S. AZIZNEJAD, H. GUPTA, J. CAMPOS, AND M. UNSER, “DEEP NEURAL NETWORKS WITH TRAINABLE ACTIVATIONS AND CONTROLLED LIPSCHITZ CONSTANT,” *IEEE Transactions on Signal Processing*, VOL. 68, PP. 4688–4699, AUG. 2020.
- [5] A. DJELOUAH, J. CAMPOS, S. SCHAUB-MEYER, AND C. SCHROERS, “NEURAL INTER-FRAME COMPRESSION FOR VIDEO CODING,” IN *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*, OCT. 2019.
- [6] J. CAMPOS, S. MEIERHANS, A. DJELOUAH, AND C. SCHROERS, “CONTENT ADAPTIVE OPTIMIZATION FOR NEURAL IMAGE COMPRESSION,” IN *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, JUN. 2019.

## PUBLICATIONS: PHILOSOPHY

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- [1] J. CAMPOS, “MAHAYANA BUDDHIST ETHICS: DEONTOLOGICAL, VIRTUE-BASED OR CONSEQUENTIALIST? AN OPTIMIZATION THEORY PERSPECTIVE.” ACCESS AT [HTTPS://GITHUB.COM/JOAQUIMCAMPOS/JOAQUIMCAMPOS.GITHUB.IO/BLOB/MASTER/DATA/PUBS/MAHAYANA\\_ETHICS.PDF](https://github.com/joaquimcampos/joaquimcampos.github.io/blob/master/data/pubs/MAHAYANA_ETHICS.PDF)
- [2] J. CAMPOS, “ON THE WRONGNESS OF KILLING NON-HUMAN ANIMALS,” COURSE THESIS, ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, MAY 2018. ACCESS AT [HTTPS://GITHUB.COM/JOAQUIMCAMPOS/JOAQUIMCAMPOS.GITHUB.IO/BLOB/MASTER/DATA/PUBS/ON\\_THE\\_WRONGNESS\\_OF\\_KILLING\\_ANIMALS.PDF](https://github.com/joaquimcampos/joaquimcampos.github.io/blob/master/data/pubs/ON_THE_WRONGNESS_OF_KILLING_ANIMALS.PDF)