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BertrandCharpentier

Web
DAML Lab - Team
Bertrand Charpentier
Scholar
Bertrand Charpentier
Git
sharpenb
Twitter
Bertrand_Charp
Mastodon
@Bertrand_Charp
LinkedIn
bertrand-charpentier
Medium
bertrand-charpentier

Programming
Python • PyTorch • TensorFlow • C/C++ • SQL • R • Matlab • Java • Bash • Ada

Software
Linux • Windows • Office softwares • LaTeX • IDE • Git

Languages
French - Native
English - C1
German - B2
Swedish - B2

Education

2018-21 **Ph.D. in Machine Learning** — TUM - Technical University of Munich - Munich
Preparation of a Ph.D. under supervision of Prof. Dr. Günnemann

2016-18 **M.Sc. in Machine Learning** — KTH - Swedish Royal Institute of Technology - Stockholm
Received a M.Sc. in Machine Learning, Mathematics and Statistics with **first class honours**
Machine Learning (Advanced) • Probability Theory • Artificial Neural Network • Martingales and Stochastic Integrals • Deep Learning • Neuroscience • Time Series Analysis

2014-18 **M.Sc. & B.Sc. in Mathematics and Computer Science** — Ensimag - Grenoble
Received a B.Sc. and a M.Sc. specialized in Mathematical Modeling, Image and Simulation with **first class honours**
Algorithms (Advanced) • Analysis • Optimization • Partial Differential Equation (Advanced) • Data mining • Probability for Learning • Information Theory • Operations Research (Advanced) • Language Theory • DataBase • Concurrent Programming • Computer Architecture Elements

2012-14 **Classes Préparatoires aux Grandes Ecoles - CPGE** — Lycée Heni IV - Paris
Received **Intensive training** in Mathematics and Physics to prepare the National French "Grandes Ecoles" competitive exam. Selected to join Ensimag

2009-12 **Baccalauréat in Scientific section** — Lycée Buffon - Paris
Received the Baccalauréat degree with major in Maths and Physics with **first class honours** after the French High School

Experiences

2022 **Research Intern** — Twitter - Cortex Team - Munich
Collaboration with all members of the Cortex team including Emanuelle Rossi, Francesco di Giovanni, Michael Bronstein
• Research interests: *Scalable ML • ML for Graphs • Physic-inspired ML*

2021-22 **Research Visit** — Stanford University - Stanford Intelligent Systems Laboratory - Stanford
Collaboration with Dr. Senanayake and Prof. Dr. Kochenderfer
• Research interests: *Uncertainty Estimation • Reinforcement Learning*

2018-22 **Ph.D. Student** — TUM - Data Analytics and Machine Learning Group - Munich
• Research interests: *Uncertainty Estimation • Robustness • Causal Inference • ML for Graphs*
• Teaching: *ML Lecture • ML for Graphs and Sequential Data Lecture • ML Practical Course • ML Research Seminar • Supervision of 20 Master's Thesis and Guided Research*
• Reviewing: Neurips • ICML
• External collaboration: BMW • Siemens • Multiscale Modeling of Fluid Materials Group (TUM)
• Others: Participation at *Mediterranean Machine Learning School 2020* • Obtaining Munich Data Science Institute funds

2017-18 **Research Intern & Research Assistant** — Télécom ParisTech - LINCS - Paris
• Research interests: *ML for Graphs • Multi-scale and Hierarchical Clustering*
• Package: Creation of `scikit-network` for graph analysis in Python
• External collaboration: Deezer

2015-16 **Spring Intern & Summer Analyst** — Morgan Stanley - London
Equity derivatives, vanilla and structured products analysis • Performance of a trading software caption

Publications

2022 **Disentangling Epistemic and Aleatoric Uncertainty in Reinforcement Learning** ICML - DFUQ workshop
B. Charpentier, R. Senanayake, M. Kochenderfer, S. Günnemann

2022 **Winning the Lottery Ahead of Time: Efficient Early Network Pruning** ICML (Spotlight)
J. Rachwan, D. Zügner, B. Charpentier, S. Geisler, M. Ayle, S. Günnemann

2022 **On the Robustness and Anomaly Detection of Sparse Neural Networks** SNN workshop
M. Ayle, B. Charpentier, J. Rachwan, D. Zügner, S. Geisler, S. Günnemann

2022 **Natural Posterior Network: Deep Bayesian Uncertainty for Exponential Family Distributions** ICLR (Spotlight)
B. Charpentier*, O. Borchert*, D. Zügner, S. Geisler, S. Günnemann

2022 **Differentiable DAG Sampling** ICLR
B. Charpentier, S. Kibler, S. Günnemann

2022 **En-to-End Learning of Probabilistic Hierarchies on Graphs** ICLR
D. Zügner, B. Charpentier, M. Ayle, S. Geringer, S. Günnemann

2021 **Graph Posterior Network: Bayesian Predictive Uncertainty for Node Classification** NeurIPS
M. Stadler*, B. Charpentier*, S. Geisler, D. Zügner, S. Günnemann

2021 **Evaluating Robustness of Predictive Uncertainty Estimation: Are Dirichlet-based Models Reliable?** ICML
A. Kopetzki*, B. Charpentier*, D. Zügner, S. Günnemann

2021 **On OOD Detection with Energy-Based Models** UDL - ICML workshop
S. Elflein, B. Charpentier, D. Zügner, S. Günnemann

2020 **Posterior Network: Uncertainty Estimation without OOD Samples via Density-Based Pseudo-Counts** NeurIPS
B. Charpentier, D. Zügner, S. Günnemann

2020 **Scikit-network: Graph Analysis in Python** JMLR
T .Bonald, N. de Lara, Q. Lutz, B. Charpentier

2019 **Uncertainty on Asynchronous Time Event Prediction** NeurIPS (Spotlight)
M. Bilos*, B. Charpentier*, S. Günnemann

2019 **Tree Sampling Divergence: An Information-Theoretic Metric for Hierarchical Graph Clustering** IJCAI
B. Charpentier, T. Bonald

2018 **Hierarchical Graph Clustering by Node Pair Sampling** MLG - KDD workshop
T. Bonald, B. Charpentier, A. Galland, A. Hollocou

2018 **Multi-scale Clustering in Graphs using Modularity** DiVA - KTH
B. Charpentier