Nicolas **Cherel**

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Education

Télécom Paris — *Paris, France*

PH.D. 'INTERNAL METHODS FOR THE GENERATION AND INPAINTING OF IMAGES AND VIDEOS' — *2020 - 2024*

Under the supervision of Alasdair Newson, Yann Gousseau, and Andrés Almansa

ENS Paris-Saclay — *Paris, France*

MSC IN MATHEMATICS, COMPUTER VISION AND MACHINE LEARNING (MVA) - *Graduated with high honors* — *2017 - 2018*

Courses: Object Recognition and Computer Vision, Probabilistic Graphical Models, Graphs, Kernel Methods

Télécom Paris — *Paris, France*

MSC IN COMPUTER SCIENCE AND APPLIED MATHEMATICS - *GPA: 3.99/4.0* — *2014 - 2018*

Courses: Statistics, Optimization, Machine Learning Algorithms, Distributed Systems, Databases

Experience

Adobe — *Paris, France*

RESEARCH SCIENTIST INTERN — *Jun. 2022 - Aug. 2022*

Patch-based methods on surfaces

Télécom Paris — *Paris, France*

RESEARCH ENGINEER — *Mar. 2020 - Oct. 2020*

- Implemented state-of-the-art video inpainting algorithm
- Wrote a literature review on video inpainting

Smiths Detection — *Paris, France*

RESEARCH ENGINEER — *Nov. 2019 - Feb. 2019*

- Worked on object detection in X-ray cargo imaging
- Successfully implemented and applied state-of-the-art domain adaptation methods

Gleamer — *Paris, France*

MACHINE LEARNING ENGINEER — *Apr. 2018 - Sep. 2019*

- Developed deep learning models to detect fractures in X-ray images
- Took many architectural and algorithmic decisions as the main machine learning engineer
- Reached significative improvement in helping radiologists for the task (clinically tested)

Cornell Tech — *New York, United States*

RESEARCH ENGINEER INTERN — *Apr. 2017 - Sep. 2017*

- Improved the data pipeline for predicting bird migrations using Spark, R, and Amazon Web Services
- Reduced cloud computing costs by 80% accounting for $200k saved annually

Microsoft — *Paris, France*

SOFTWARE ENGINEER INTERN — *Jul. 2016 - Feb. 2017*

- Investigated the cold start problem for music recommendation in *Groove Music*
- Wrote production code in C++ for a software with millions of users

Skills

Programming Languages Python, C++, Shell, Matlab, Java

Libraries PyTorch, CUDA, Numpy, TensorFlow, scikit-learn, Pandas

Misc. Git, GNU/Linux, Spark, Hadoop, SQL, LaTeX

Languages French (native), English (fluent)

Publications

Infusion: Internal Diffusion for Video Inpainting
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
In preparation, 2023. URL: https://arxiv.org/abs/2311.01090

Diffusion-based image inpainting with internal learning
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
(EUSIPCO 2024) 32nd European Signal Processing Conference, 2024, Lyon. URL: https://arxiv.org/abs/2406.04206

Patch-Based Stochastic Attention for Image Editing
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
Computer Vision and Image Understanding 238 (Jan. 2024) p. 103866. 2024. URL: https://www.sciencedirect.com/science/article/abs/pii/S1077314223002461

A Patch-Based Algorithm for Diverse and High Fidelity Single Image Generation
Nicolas Cherel, Andrés Almansa, Yann Gousseau, Alasdair Newson
2022 IEEE International Conference on Image Processing (ICIP), 2022. URL: https://hal.science/hal-03822204/

Assessment of an AI Aid in Detection of Adult Appendicular Skeletal Fractures by Emergency Physicians and Radiologists: A Multicenter Cross-sectional Diagnostic Study
Loïc Duron, Alexis Ducarouge, André Gillibert, Julia Lainé, Christian Allouche, Nicolas Cherel, Zekun Zhang, Nicolas Nitche, Elise Lacave, Aloïs Pourchot, Adrien Felter, Louis Lassalle, Nor-Eddine Regnard, Antoine Feydy
Radiology 300.1 (July 2021) pp. 120–129. 2021

Teaching

Teaching assistant

Labs and projects supervision in machine learning, deep learning, computer vision, and image processing for courses at Télécom Paris, MVA, M2 Data Science

- 2022-2023: 64h
- 2021-2022: 64h
- 2020-2021: 32h