

# Jan Butora

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## Research activity

**Centre national de la recherche scientifique (CNRS), Lille, France**

**Postdoctoral researcher** June 2021 - June 2024

**Binghamton University, Binghamton, NY**

**Research assistant** August 2017 - May 2021

## Education

**Binghamton University, Binghamton, NY**

**Ph.D.** Electrical and Computer Engineering, May 2021.

**Charles University, Prague, Czech Republic**

**M.S.** Mathematical Methods of Information Security, June 2017 (with honors).

**B.S.** Mathematical Methods of Information Security, June 2015.

## Research Interests

- Steganography
- Steganalysis
- Applied Deep Learning

## Teaching Experience

**IMT Nord Europe**

**Instructor of Record**

- CI2 FISE 2024 Security, Authentication, and Forensics, Spring 2023
- CI1 FISE 2025 Théorie du signal, Fall 2022

## Binghamton University

### Instructor

- EECE-580G Deep Learning for EECE, Fall 2020

### Instructor of Record

- EECE-566 Detection Theory, Spring 2019
- EECE-562 Fundamentals of Steganography, Fall 2019

## Awards

- Best Paper Award, 9th IH&MMSec. Workshop, Brussels, Belgium, June 22-25, 2021
  - Revisiting Perturbed Quantization
- Best Paper Award, 7th IH&MMSec. Workshop, Paris, France, July 3-5, 2019
  - Effect of JPEG Quality on Steganographic Security
- Research Assistantship (RA), EECE Department, Binghamton University, 2017-2021

## Publications

### Journal Papers:

- **Errorless Robust JPEG Steganography using Outputs of JPEG Coders**, with P. Puteaux, and P. Bas, IEEE Transactions on Dependable and Secure Computing, August 2023.
- **Side-Informed Steganography for JPEG Images by Modeling De-compressed Images**, with P. Bas, IEEE Transactions on Information Forensics and Security, April 2023.
- **Reverse JPEG Compatibility Attack**, with J. Fridrich, IEEE Transactions on Information Forensics and Security, vol. 15, no.1, pp. 1444-1454, December 2019

### Conference Papers:

- **Attaque temporelle de la compatibilité JPEG**, with E. Levecque, and P. Bas, GRETSI, Grenoble, France, August 28 - September 1, 2023.
- **Analysis and Mitigation of the False Alarms of the Reverse JPEG Compatibility Attack**, with P. Bas, 11th IH&MMSec. Workshop, Chicago, Illinois, June 28-30, 2023.
- **Compatibility and Timing Attacks for JPEG Steganalysis**, with E. Levecque, and P. Bas, 11th IH&MMSec. Workshop, Chicago, Illinois, June 28-30, 2023.
- **Stéganographie robuste et sans erreur dans des images JPEG en utilisant les sorties des codeurs JPEG**, with P. Puteaux, and P. Bas, CORESA, Lille, France, 7-9 June , 2023.
- **Toward Reliable JPEG Steganalysis (at QF 100)**, with E. Levecque, J. Klein, and P. Bas, IEEE WIFS, Shanghai, China, December 12-16, 2022.
- **Vers une stéganalyse certifiée pour des images JPEG**, with E. Levecque, J. Klein, and P. Bas, GRETSI, Nancy, France, September 6-9, 2022.
- **High Quality JPEG Compressor Detection via Decompression Error**, with P. Bas, GRETSI, Nancy, France, September 6-9, 2022.
- **Fighting the Reverse JPEG Compatibility Attack: Pick your Side**, with P. Bas, 10th IH&MMSec. Workshop, Santa Barbara, California, June 27-29, 2022.
- **CNN Steganalyzers Leverage Local Embedding Artifacts**, with Y. Yousfi, and J. Fridrich, IEEE WIFS, Montpellier, France, December 7-10 2021.
- **Revisiting Perturbed Quantization**, with J. Fridrich, 9th IH&MMSec. Workshop, Brussels, Belgium, June 22-25, 2021.
- **How to Pretrain for Steganalysis**, with Y. Yousfi and J. Fridrich, 9th IH&MMSec. Workshop, Brussels, Belgium, June 22-25, 2021.
- **Improving EfficientNet for JPEG Steganalysis**, with Y. Yousfi, J. Fridrich, and C. F. Tsang, 9th IH&MMSec. Workshop, Brussels, Belgium, June 22-25, 2021.
- **Extending the Reverse JPEG Compatibility Attack to Double Compressed Images**, with J. Fridrich, IEEE ICASSP 2021, Toronto, Canada, June 6-11, 2021.
- **ImageNet Pre-trained CNN Models for JPEG Steganalysis**, with Y. Yousfi, E. Khvedchenya, and J. Fridrich, IEEE WIFS, New York, NY, December 6-11, 2020

- **Turning Cost-Based Steganography into Model-Based**, with Y. Yousfi and J. Fridrich, 8th IH&MMSec. Workshop, Denver, CO, June 20-22, 2020
- **Steganography and its Detection in JPEG Images Obtained with the "Trunc" Quantizer**, with J. Fridrich, IEEE ICASSP 2020, Barcelona, Spain, May 4-8, 2020
- **Minimum Perturbation Cost Modulation for Side-Informed Steganography**, with J. Fridrich, Proc. IS&T, Electronic Imaging, Media Watermarking, Security, and Forensics 2020, San Francisco, CA, January 26-30, 2020
- **Effect of JPEG Quality on Steganographic Security**, with J. Fridrich, 7th IH&MMSec. Workshop, Paris, France, July 3-5, 2019
- **Breaking ALASKA: Color Separation for Steganalysis in JPEG Domain**, with Y. Yousfi, J. Fridrich, and Q. Giboulot, 7th IH&MMSec. Workshop, Paris, France, July 3-5, 2019
- **Detection of Diversified Stego Sources with CNNs**, with J. Fridrich, Proc. IS&T, Electronic Imaging, Media Watermarking, Security, and Forensics 2019, San Francisco, CA, January 14-17, 2019

## Professional Activities

### Fellowships:

- IEEE Information Forensics and Security Technical Committee (IFS-TC) **Elected Member**, 2022-2024.
- IEEE Information Forensics and Security **Award Subcommittee Member**, 2022-2023.

### Conference:

- **Award Chair** of the IEEE International Workshop on Information Forensics and Security (WIFS), Shanghai, China, December 2022.
- **Technical Program Chair** of the ACM Workshop on Information Hiding and Multimedia Security (IH&MMSec), Santa Barbara, California, June 2022.

### Invited Talks:

- **Robust Steganography**, UNCOVER Summer School on Steganography, Prague, September 2023.

**Reviewer**

- IEEE Transactions on Information Forensics and Security (IEEE TIFS)
- IEEE Transactions on Dependable and Secure Computing (IEEE TDSC)
- IEEE Transactions on Multimedia (IEEE TM)
- IEEE International Conference on Acoustics, Speech and Signal Processing (IEEE ICASSP)
- IEEE International Conference in Image Processing (IEEE ICIP)
- IEEE International Workshop on Information Forensics and Security (IEEE WIFS)

**Skills**

**Language** : French (C1), English (C2), Czech (Native).

**Software** : Python, Tensorflow, PyTorch, Slurm, Matlab, L<sup>A</sup>T<sub>E</sub>X, Docker.