

# Filip B. Bećanović

Optimization • Robotics • Biomechanics • Machine Learning

Dr Agostina Neta 66, 11070, Belgrade, Serbia

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## Education

### University Paris-Est Créteil

Paris, France

#### Cotutelle Ph.D. in Signal Processing, Imaging, and Control Systems

Nov, 2020 – Feb, 2024

- École Doctorale Mathématiques et Sciences de la Technologie, Information, et Communication.
- Dissertation title: "Uncovering optimal control strategies in human motion through inverse optimal control".
- Dissertation committee: Milica Janković, Željko Đurović, Vincent Bonnet, François Charpillet, Vincent Padois.
- Advisor: Prof. Samer Mohammed.

#### M.S. (Erasmus+ Exchange) in Signal Processing, Imaging, and Control Systems

Jan, 2020 – Jul, 2020

- Biometrics module.
- GPA: 16.5 (out of 20).

### University of Belgrade, School of Electrical Engineering

Belgrade, Serbia

#### Cotutelle Ph.D. in *Electrical Engineering and Computer Science*

Nov, 2020 – Feb, 2024

- Signals and Systems department.
- Dissertation title: "Uncovering optimal control strategies in human motion through inverse optimal control".
- Dissertation committee: Milica Janković, Željko Đurović, Vincent Bonnet, François Charpillet, Vincent Padois
- Advisor: Prof. Kosta Jovanović.

#### M.S. in Electrical Engineering and Computer Science

Oct, 2019 – Sep, 2020

- Signals and Systems department.
- GPA: 9.33 (out of 10).

#### B.S. in Electrical Engineering and Computer Science

Oct, 2015 – Sep, 2019

- Signals and Systems department.
- GPA: 9.42 (out of 10).

## Publications

### Journal Papers (published)

1. Bećanović, F., Bonnet, V., Dumas, R., Jovanović, K. and Mohammed, S., 2022. Force Sharing Problem During Gait Using Inverse Optimal Control. *IEEE Robotics and Automation Letters*, 8 (2), pp. 872-879. [DOI: 10.1109/LRA.2022.3217398].

### Conference Proceedings (published)

1. Bećanović, F., Bonnet, V. and Jovanović, 2024. Reliability of Single-Level Equality-Constrained Inverse Optimal Control. 2024 IEEE-RAS 23<sup>rd</sup> International Conference on Humanoid Robots (Humanoids), pp.623-630. [DOI: 10.1109/Humanoids58906.2024.10769923]

2. Klasanović, D., Jugović, L., Ružić, N., Bećanović, F. and Knežević, N., 2024. Application and Optimal Design of a Soft Robotic Gripper for Grasping Objects of Arbitrary Shape. *11th International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2024)*, pp. 77. [DOI: 10.1109/IcETRAN62308.2024.10645079]

3. Lukić, B., Bećanović, F., and Radmilović, M., 2024. Human motion estimation application for the marker-based motion capture systems. *11th International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2024)*, pp. 80. [DOI: 10.1109/IcETRAN62308.2024.10645143]

4. Rodić, F., Bećanović, F., Aleksić, J., Mirkov, D. and Jovanović, K., 2024. Synchronization of Motion Capture and Forceplate Data for Analysis of Vertical Jumping. *11th International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2024)*, pp. 80. [DOI: 10.1109/IcETRAN62308.2024.10645109]

5. Bećanović, F., Miller, J., Bonnet, V., Jovanović, K. and Mohammed, S., 2022. Assessing the Quality of a Set of Basis Functions for Inverse Optimal Control via Projection onto Global Minimizers. *IEEE 61st Conference on Decision and Control (CDC)*, pp. 7598-7605. [DOI: 10.1109/CDC51059.2022.9993342]

6. Radmilović, M., Urukalo, Đ., Petrović, M., **Bečanović, F.** and Jovanović, K., 2021. Influence of muscle co-contraction indicators for different task conditions. *8th International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2021)*, pp. 584-590. [ISBN 978-86-7466-894-8]
7. **Bečanović, F.**, Bonnet, V., Mohammed, S. and Jovanović, K., 2021. Pronalazak Optimizacije Funkcije Kretanja iz Simulirane Demonstracije Pokreta Čučnja. *65<sup>th</sup> Conference on Electrical, Electronic and Computing Engineering (ETRAN 2021)*, pp. 551-555. [ISBN 978-86-7466-894-8]

## Experience

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**University of Belgrade, School of Electrical Engineering**  
Research Associate (i.e. Postdoctoral Researcher), Robotics Laboratory  
Research Assistant (i.e. Ph.D. Student Researcher), Robotics Laboratory  
**Laboratory for Analysis and Architecture of Systems (LAAS-CNRS)**  
Visiting Ph.D. Student, Humanoid Robotics, Gepetto Team  
Visiting Ph.D. Student, Humanoid Robotics, Gepetto Team  
**Microsoft Development Center Serbia (MDCS)**  
Mathematical Data Labelling Associate, Math Team  
**University of Belgrade, School of Electrical Engineering**  
Lab Assistant, Electrical Engineering Laboratory

*Belgrade, Serbia*  
Sep, 2024 - Present  
Apr, 2021 – Sep, 2024  
*Toulouse, France*  
Jan, 2023 – May, 2023  
Jan, 2022 – May, 2022  
*Belgrade, Serbia*  
Feb, 2019 – Jun, 2019  
*Belgrade, Serbia*  
Feb 2019 – May 2019

## Teaching

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**University of Belgrade, School of Electrical Engineering**  
Teaching Assistant

- 13E054BMH Biomechanics

**University Paris-Est Créteil**

Teaching Assistant

- (License SPI – Synthèse SPI) Engineering Sciences Synthesis

*Belgrade, Serbia*  
Autumn, 2023, 2024

*Paris, France*  
Spring, 2021

## Project Participation

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**Horizon Europe Projects (Funding Body: EU Commission)**

**MUSAE: A Human - Centered Factory for a Future Technological Sustainable Development Driven by Arts (MUSAE)**

*Sep, 2023 – Present*

- Acronym: MUSAE.
- Call: HORIZON-CL4-2021-HUMAN-01.
- Grant ID: 101070421.
- Role: Researcher, Administrative staff.
- Institution: University of Belgrade, School of Electrical Engineering.

**Nationally Funded Projects**

**Multi-SENSor System and ARTificial intelligence in service of heart failure diagnosis (SensSmart)**

*Sep, 2023 – Dec, 2023*

- Acronym: SensSmart.
- Funding body: Science Fund of the Republic of Serbia.
- Call: IDEAS Programme.
- Grant ID: 7754338.
- Role: Researcher, Administrative staff.
- Representing institution: University of Belgrade, School of Electrical Engineering.

## Scholarships

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### Cotutelle Ph.D. Scholarship

Nov, 2020 – Nov, 2023

Funded by the French government's agency Campus France. 36-month long.  
Supported by the French Institute in Serbia and the French Embassy in Serbia

### ERASMUS+ KA1 Scholarship

Jan, 2020 – Jul, 2020

Funded by the European Union's ERASMUS+ program. 6-month long.

### Exceptional Academic Performance Scholarship

Oct, 2017 – Sep, 2020

Funded by the Serbian government's Ministry of Science, Technological Development and Innovation.

## Continuous Learning and Certifications

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### Certificate of Proficiency in English (C2)

Jan, 2025

Cambridge University Press & Assessment

English C2 CEFR level exam.

### 10<sup>th</sup> Practical Seminar in Machine Learning (PSIML10)

Jul, 2024

Among selected 20 applicants (out of 200+). Received accommodation and travel grant. 10-day-long. Organized by Serbian science and engineering center PFE. Sponsored by Microsoft Development Center Serbia.

### Eastern European Machine Learning Summer School (EEML2024)

Jul, 2024

Among selected 150 applicants (out of 700+). Received accommodation and travel grant. Week-long. Organized by Google DeepMind researchers. Sponsored by Google DeepMind.

## Professional Service

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### Peer-review

#### Journals

IEEE Robotics and Automation Letters

2024-2025

#### Conferences

IEEE Control and Decision Conference

2023-2024

International Conference on Robotics in Alpe-Adria-Danube Region

2025

International Conference on Electrical, Electronic and Computing Engineering

2021-2025