

# Silvia Vangelova



## Contact:

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LinkedIn [↗](#)

GitHub [↗](#)

## Education:

Oct. 2024 – Present

ETH Zurich | Switzerland

**Doctor of Science | Circular Engineering for Architecture Lab | Prof. Catherine De Wolf**

August 2023 – May 2024

Georgia Institute of Technology | Atlanta, Georgia, U.S.

**Continuing Education in Computational Data Analytics**

Sept. 2021 – March 2022

RWTH Aachen University | Germany

**Erasmus+ Exchange Program | Chair of Design Computation**

Sept. 2016 – Jan. 2022

University of Architecture, Civil Engineering and Geodesy | Sofia, Bulgaria

**Master of Architecture | Technology of Architecture | RIBA Part II**

## Experience:

Oct. 2024 – Present

ETH Zurich | Switzerland

**Doctoral Researcher | Circular Engineering for Architecture Lab | Prof. Catherine De Wolf**

- Aligning perspectives on information requirements for building components value retention throughout their life cycle using digital technologies
- Disseminating research for the Swiss Digital Circular Construction Ecosystem project SWIRCULAR through publications, workshops and surveys [↗](#)

Jan. 2024 – May 2024

Georgia Institute of Technology | Atlanta, Georgia, U.S.

**Graduate Assistant | School of Architecture | Prof. Patrick Kastner**

- Developed platform-independent algorithms for automating spatial data acquisition and 3D city model generation for energy studies as part of Georgia Tech's Sustainability Next Strategic Plan [↗](#)
- Supervised students and led workshops on urban mobility, energy in buildings and microclimate while participating in the Surrogate Models for Urban Regeneration project [↗](#)

Oct. 2019 – Oct. 2024

Sci Mode Ltd | Sofia, Bulgaria

**Computational Solutions Lead**

- Initiated, planned, executed, and maintained digital solutions and workflows in collaboration with industry and academia: from parametric product assembly to city infrastructure modelling and analysis
- Developed, scaled, and maintained software for life cycle and embodied carbon assessment for desktop and web applications [↗](#)

July 2019 – Sept. 2019

## Architecture & Design Intern

- Processed point cloud scans into Building Information Models
- Automated Autodesk Revit and Autodesk Advance Steel design workflows with Python
- Communicated with international clients for implementing their design ideas

## Publications:

- GNI Symposium & Expo on Artificial Intelligence for the Built World, Munich, 10-12 September 2024 [🔗](#)  
submission accepted, "LiDAR data for enriching open geospatial building datasets: implications for urban building energy modelling", co-author Prof. Patrick Kastner
- SIGraDi 2024 Biodigital Intelligent Systems Conference, Barcelona, 13-15 November 2024 [🔗](#)  
conference paper pending, "A computational design framework for assessing solar photovoltaic potential of buildings based on LiDAR and building footprint data", co-author Prof. Patrick Kastner

## Scholarships:

- Sept. 2021 - March 2022: Erasmus+ Exchange Program Scholarship
- Sept. 2016 - Jan. 2022: National Scholarship for Excellent Academic Performance: for all semesters

## Awards:

- April 2024: "Outstanding Teaching Assistant" - for helping students turn their ideas into tangible solutions
- Jan. 2022: "Union of Architects Bulgaria Honorary Award" - innovative Masters Project
- Jan. 2022: "Prof. Arch. Zheko Tilev Award" - best structural design Masters Project
- Jan. 2021: "Alukönigstahl: Modern facade constructions and solar shading" - third place project

## Workshops:

- Feb. 2024: AEC Hackathon Zürich | MVP plug-in for Revit: 2050 Materials API database integration [🔗](#)
- Nov. 2023: AECtech NYC | Virtual Masterclass | Build Web Apps Using ShapeDiver & Grasshopper 3D [🔗](#)
- May 2021: Ultimate Monoceros Grasshopper 3D workshop (attendance scholarship winner) [🔗](#)

## Certifications:

- Georgia Tech New Hire Learning and Compliance
- Georgia Tech New Hire Social Engineering Red Flags
- Georgia Tech New Hire Identifying Insider Threats
- GTx ISYE 6739x Probability and Statistics
- IBM Deep Learning Fundamentals with Keras
- IBM Deep Learning with TensorFlow
- IBM PyTorch Basics for Machine Learning

## Languages:

- English - Full professional proficiency (C1)
- German - Professional working proficiency (B2)

## Skills:

- Programming - C#, C++, Python, R, Matlab, JavaScript, TypeScript, HTML, CSS, OOP, UX/UI, WPF, Windows Forms
- Analytical - Statistics, Machine Learning, Advanced Regression, Graph Theory, Simulation, Optimization, Sensitivity Analysis
- Architectural - Computational Design, Complex geometry visualisation, Algorithmic modelling, AutoCAD, Rhinoceros 3D, Grasshopper 3D, Revit, Autodesk Dynamo, ReCap Pro, Adobe Suite