Petras Vestartas

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LANGUAGE

English	Full professional proficiency (C1)
German	Basic user of the language (A2/B1)
French	Elementary (A1)
Lithuanian	Mother Tongue

PROFESSIONAL EXPERIENCE

2023-Present	**Post-doc Block Research Group (BRG)**, Swiss Federal Institute of Technology in Zurich (ETHZ), Switzerland, www.brg.ethz.ch. (COMPAS Python framework development, research in Timber-Vaulted-Floor Systems, workshops and assistance to teaching.)
2021-2023	**Post-doc Laboratory for Timber Constructions (IBOIS)**, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, www.dfab.ch, www.epfl.ch/labs/ibois (Supervision of PhD Thesis, compas_wood development, ABB 6700 Robot with track motion commission and the structural system development for the Brussels Sports Tower - Competition 1st place)
2016-2017	**Research Assistant, CITA,** Royal Danish Academy of Fine Arts (KADK), Copenhagen, Denmark, www.royaldanishacademy.com/CITA (Flora Robotica and Complex Modelling 5 – Inflated Restraint)
2014-2016	**Architect, DMAA,** Vienna, Austria, www.dmaa.at (Austrian Pavilion – Architecture Venice Biennale, Italy (Commission 2016), Wohnen Am Schweizer Garten, Vienna, Austria (1st Place), Fiducia GAD, Karlsruhe, Germany (Competition 2015), Zollhafen, Mainz, Germany (Competition 2015), Elbrucken, Hafencity-Hamburg, Germany (Recognition), U5 – Wiener Linien, Austria (Competition 2015), Porsche Design Tower, Frankfurt, Germany (Competition 2015), Future Art Lab, Vienna, Austria (3rd Place), Central Park Taopu, China (Competition 2014)m Campus Tower, Hafencity, Hamburg, Germany (1st Place), Changchun Forest Park (Competition 2014)
2012-2013	**Architect, Do-Architects,** Vilnius, Lithuania, www.doarchitects.lt (Vilnius Bajorai masterplan)
2011	**Internship, CEBRA,** Aarhus, Denmark, www.cebraarchitecture.dk (Valer Church, Hoje Taastrup masterplan)
2010	**Architect, Vakarinis Fasadas,** Siauliai, Lithuania (Palanga Sanatorium, Druskininkai cafeteria)
2009	**Furniture Designer, Graniteka,** Siauliai, Lithuania (Stone furniture 3D preparation for fabrication)

EDUCATION

2017-2021	**Doctor of Philosophy (Ph.D.) in Architecture**, Laboratory for Timber Construction (IBOIS), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland.
2013-2014	**Erasmus Exchange Program**, Royal Danish Academy of Fine Arts (KADK), Copenhagen, Denmark
2012-2014	**Master of Science (M.Sc.) in Architecture**, Vilnius Academy of Arts (VAA), Lithuania
2008-2012	**Bachelor of Science with distinction (B.Sc.) in Architecture**, Vilnius Academy of Arts (VAA), Lithuania

AWARDS

2022	**"Best paper award - Runner Up**" at conference CAADRIA2022 for paper “Cockroach: an open-source tool for point cloud processing in cad”.
2013	**Lithuanian President Antanas Smetona Scholarship**, one year scholarship for excellent grades.

GRANTS AND FUNDING

2023	**ETHZ Partnership Council for Sustainable Construction and Digital Fabrication,** Timber Vaulted Floor funding for materials and CNC fabrication, **19’000.- CHF**
2020-2022	**EPFL Equipment funding for an industrial robot arm (ABB 6700) and track motion (6.7 m IRBT)**, coordination for the technical specification with robot integrators, software suppliers, EPFL staff and writing documents for the ABB spindle package, automatic tool changer and the multi-move configuration **182’240.- CHF and 45’000.- CHF**
2022	**ENAC Equipment Call**, High precision scanners (Photoneo, Sick, Roboception) and robotic integration parts. Structures, **33’949.- CHF**

TEACHING

2025	**AA Summer School,** Co-Director of the Seoul AA Visiting School with a focus of COMPAS Python Framework courses.
2025	**CALGARY COMPAS Workshop,** COMPAS introduction, Form-finding using Rhino Vault and Fabrication Methods.
2025	**AEC Hackathon,** COMPAS support group for advertising the Python Framework, installation and new features development.
2024	**IBOIS COMPAS WOOD Workshop,** timber joinery techniques while demonstrating IBOIS built projects for master students.
2024	**IASS2024 workshop - Building Information Modelling with COMPAS,** workshop preparation and lectures to introduce geometry serialization to IFC file.
2023-2025	**Computation Structural Design (CSD I)**, assistance for the course in computational graphic statics using package COMPAS AGS (Algebraic Grap(ic) Statics).
2020-2022	**Introduction to Computational Architecture (AR-327)**, weekly course at EPFL proposed by a joint teaching PhD and Post-doc teaching for Rhino3D, Grasshopper and Python, www.edu.epfl.ch/coursebook/fr/introduction-to-computational-architecture-AR-327
Online	**Advanced Timber Plate Structural Design**, online teaching resource for generating timber joinery: www.epfl.ch/education/continuing-education/catalog

2020 - 2021	**Master Thesis supervision,** theoretical thesis, architectural project and robotic cutting teaching for the final year master student Maxim Andrist, https://infoscience.epfl.ch/record/289326.
2017-2022	**EPFL Master Studio Teaching (MA1, MA2 and the traversal BA/MA studio),** weekly student project revision as part of 20% PhD contract.
2017-2022	**CNC and ABB Robot Programming,** teaching IBOIS, EPFL students CNC workflow using Rhino Grasshopper plugin Raccoon and 5-Axis CNC machine Maka.
2020-2021	**Land of Thousand Dance,** joint IBOIS+ALICE EPFL laboratories teaching at ENAC week for a design of reused timber elements.
2019	**Mesh Discretization and Assembly Methods (Corrugated Cardboard Shell 1:1),** Workshop at Vilnius Academy of Arts (VAA).
2017	**Aggregations and Graph-Based Modelling,** Workshop at Vilnius Academy of Arts (VAA). Exhibition is held at Architects Association of Lithuania 2017 - March 10-24.

DEVELOPED SOFTWARE

COMPAS_MODEL – universal model data-structure for design, analysis, fabrication, and AEC objects, www.github.com/BlockResearchGroup/compas_model

OPENNEST – nesting methods for CNC and Laser cutting, www.food4rhino.com/en/app/opennest

RACCOON – 5-axis CNC Fabrication methods, www.github.com/ibois-epfl/Raccoon

COMPAS_WOOD – timber joinery modelling, www.ibois-epfl.github.io/compas_wood/latest/

COCKROACH – PointCloud Processing Library, www.ibois-epfl.github.io/Cockroach-documentation/

NGON – polygonal mesh processing, www.food4rhino.com/en/app/ngon

FOX – aggregation and graph methods, www.food4rhino.com/en/app/fox

SCATTER – instancing objects for large 3D rendering scenes, www.food4rhino.com/en/app/scatter

SOFTWARE SKILLS

C++ – development using libraries: CGAL, OPENGL (GLFW), BOOST, EIGEN, OPEN3D, LIBIGL, PMP

Python – development using Nanobind, Pybind11, Rhino3D and Compas framework.

C# – professional and teaching experience

Java – creative coding mainly using Processing IDE

JavaScript – web development using VUE.js framework

CMake – basic library linking and super-build pattern

GIT – maintaining open-source repositories through version control.

CAD/GRAPHICS – Rhino3D/Grasshopper, Revit, Autocad, Adobe Package, ArcGIS, V-Ray

PUBLICATIONS

2025

P. Vestartas P., L. Füssler, A. R. Rad, D. S. Lee, T. van Mele, P. Block. **Exploring the Potential of Funicular Timber Floors**. ICSA, Antwerp, Belgium, 2025.

2022

A. Settimi, P. Vestartas, J. Gamerro, Y. Weinand. **Cockroach: an open-source tool for point cloud processing in cad.** 27th International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA), Sydney, Australia, 2022. **Best paper award - Runner Up" at CAADRIA2022**

N. Rogeau, A. Rezaei Rad, P. Vestartas, P. Latteur, Y. Weinand. **A Collaborative Workflow to Automate the Design, Analysis, and Construction of Integrally-Attached Timber Plate Structures.** 27th International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA), Sydney, Australia, 2022

2021

P. Vestartas, A. Rezaei Rad, and Y. Weinand. **Robotically-Fabricated Nexorades from Whole Timber.** International fib Symposium on the Conceptual Design of Structures. Switzerland, 2021.

A. Rezaei Rad, H. Burton, N. Rogeau, P. Vestartas, and Y. Weinand. **A framework to automate the design of digitally-fabricated timber plate structures.** Computers & Structures, 2021.

2020

P. Vestartas and Y. Weinand. **Joinery Solver for Whole Timber Structures.** WCTE2020, Santiago, Chile, August 24-27, 2020.

P. Vestartas and Y. Weinand. **Laser Scanning with Industrial Robot Arm for raw wood Fabrication.** ISARC2020, Kitakyushu, Japan, October 27-28, 2020. p. 773-780, 2020.

L. Vestarte, P. Vestartas, and R. Kucinskas. **Corrugated Cardboard Shell: A Pavilion Project of An Architectural Workshop.** Advances in Architectural Geometry (AAG), 2020.

2019

P. Vestartas, N. Rogeau, J. Gamerro and Y. Weinand. **Modelling Workflow for Segmented Timber Shells using Wood-wood Connections.** Design Modelling Symposium Berlin 2019. Impact: Design with all Senses, p. 596-607, Berlin, Germany, September 23-25, 2019.

P. Vestartas, L. Palletier, M. T. Nakad, A. R. Rad, and Y. Weinand. **Segmented Spiral Using Inter-Connected Timber Elements.** IASS 2019 Barcelona Symposium: Timber and Bio-based Structures, 2019.

A. C. Nguyen, B. Himmer, P. Vestartas, Y. Weinand. **Performance Assessment of Double-Layered Timber Plate Shells using Alternative Structural Systems.** Proceedings of IASS Annual Symposia, 2019.

A. C. Nguyen, P. Vestartas, Y. Weinand. **Design framework for the structural analysis of free-form timber plate structures using wood-wood connections. Automation in Construction**, 2019.

2017	P. Ayres, P. Vestartas, M. R. Thomsen. **Enlisting Clustering and Graph-Traversal Methods for Cutting Pattern and Net Topology Design in Pneumatic Hybrids.** Design Modelling Symposium (DMS) Paris 2017. P. Vestartas, M. K. Heinrich, M. Zwierzycki, D. A. Leon, A. Cheheltan, R. La Magna, P. Ayres. **Design Tools and Workflows for Braided Structures.** Design Modelling Symposium (DMS) Paris 2017. M. Zwierzycki, P. Vestartas, M. K. Heinrich, P. Ayres. **High Resolution Representation and Simulation of Braiding Patterns.** Conference: Disciplines & Disruption, ACADIA 2017

BOOK CHAPTERS

2022	S. Berthier, C. Catsaros, M. Rinke, P. Vestartas, S. Vuilleumier, **Les cahiers de l'Ibois 3. Ibois Notebooks 3**, 2022. Introductory text and images are used from the PhD thesis.
2021	A. Rezaei Rad; P. Vestartas. Structural design methodology in Integrally-Attached Timber Plate structures. **Design of Integrally-Attached Timber Plate Structures**; London: Routledge, Taylor & Francis Group, 2021. p. 216.
2020	R. Kucinskas. **"Skaitmeninė architektūra VDA/ Digital architecture at the VAA".** Workshop results of 2011-2019 studying and teaching at VAA, 2020.
2016	D. Kohler. **The Mereological City. A reading of the works of Ludwig Hilberseimer.** Architecture [transcript], Results of the workshop "The Figure and its Figurations", 2016.
2014	P. Vestartas, **Best graduation projects of architecture students in Baltic states**. Master Thesis project. 2014.

INVITED LECTURES AND CRITS

2024	Jury member for: studio "**Programming Wood Waste**". KIT, Karlsruhe, Germany.
2023	Keynote Presentation: **"Frontiers of Intelligent Timber Construction",** Architectural DigitalFUTURES Talk, online. Conference Presentation: "**Robotics and Digital Methods in Advanced Timber Structures",** Vilnius Tech, Statyba ir Architektura, Vilnius, Lithuania.
2022	Lecture: **Robotic Timber Joinery**. Thinking Wood. Research and Practice. Aarhus school of Architecture, Denmark. Lecture: **Research and Teaching**. CITA session. The Royal Danish Academy of Fine Arts, Denmark.
2021	Jury member for: studio "**Deep Volumes, a House for an Artist**". i.sd. Structure and Design. University of Innsbruck, Austria.
2017	Jury member for: **3rd year BA studio**, Faculty of Engineering LTH, Lund University, Sweden.

EXHIBITIONS

2022	Exhibition **ENAC 20 Years**: PhD thesis and videos from fabrication experiments together with IBOIS, EPFL built project and ongoing research, Lausanne, Switzerland.
	Exhibition and book: "**TOUCH WOOD**". Raw wood arch prototype using conical joints, Zurich, Switzerland.
2019	Teaching Workshop Exhibition: Corrugated Cardboard Shell 1:1, pavilion exhibition at **ARTVILNIUS'19**, Vilnius, Lithuania.
2018	Exhibition: **Rossiniere city hall exhibition** of prof. dr. Yves Weinand lecture, accompanied by the hexagonal shell and raw wood prototypes, Rossiniere, Switzerland.
2017	Teaching Workshop: "**Aggregation and Graph-Based Modelling** ", Vilnius, Lithuania.
2014	MA Exhibition: "**Best graduation projects of architecture students in Baltic states**", Vilnius, Lithuania.
	Study Workshop: "**Figure and its figuration** ", Vilnius, Lithuania.
2013	Study Workshop: "**From Landscape to Roofscape** ", Vilnius, Lithuania.
2012	Study Workshop: "**Environmental design and its historical trajectories** ", Vilnius, Lithuania.
2011	Study Workshop: "**Architecture as organizational matter** ", Vilnius, Lithuania.