COLTER WEHMEIER

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EDUCATION

PhD in Informatics, University of Illinois Urbana Champaign, 2025 (anticipated)
PhD in Science and Technology in Cultural Heritage, The Cyprus Institute, 2025 (anticipated)
M. Architecture, University of Illinois at Urbana-Champaign, 2019
B.Sc, Architectural Studies, University of Illinois at Urbana-Champaign, 2016

EMPLOYMENT

The Science and Technology in Archaeology and Culture Research Center,
The Cyprus Institute   2018 - Present
Graduate Research Assistant, Virtual Environments Laboratory (VELab)   *Aglantzia, CY*

· Research Lead: Dr. Georgios Artopoulos
· Developed interactive software for public engagement and education with cultural heritage and the arts across the EU.
· Operated Dariah codesign and cultural heritage workshops to survey populations, design architectural interventions, and publish statistical, spatial, and qualitative results .

National Center for Supercomputing Applications,
The University of Illinois at Urbana-Champaign   2016 - Present
Fiddler Innovation Fellow, Advanced Visualization Lab (AVL)   *Urbana, IL*

· Research Lead: Dr. Donna Cox (2016-2020), Kalina Borkiewicz (2020-present)
· Developed software for accessing and storing digital cultural heritage assets in AR/VR.

National Center for Supercomputing Applications (NCSA),
The University of Illinois at Urbana-Champaign   2013 - 2016
SPIN Fellow (Students Pushing Innovation), Advanced Visualization Lab (AVL)   *Urbana, IL*

· Advisor: Dr. Donna Cox
· Developed VR interfaces and experiences for scientific data, architecture, and heritage.

GRANTS/FELLOWSHIPS

Received:

- **Fiddler Innovation Graduate Student Fellowship**, 2017-2023
  Awarded to students addressing cultural/global challenges that incorporate art and technology

- **Student Led Initiative Grant**, Student Sustainability Committee (SSC),
  University of Illinois at Urbana-Champaign, 2019
  Wrote proposal for recycling 3D printed plastic/sawdust into new filament for student projects, and sourcing local recycled materials for digital fabrication projects

AWARDS AND HONORS/FELLOWSHIPS

- **Chicago Studio Award (First)**, 2019
  Awarded to top project across department
  Project: Recovering Urban Memory in Baitasi District, Beijing

- **Archon Studio Prize (2nd Place)**, 2018
  Awarded to top project in Archon Prize Studio
  Project: 12 Miles, A Year and Staked Bench

- **CRITICAL MASS Student Choice Award**, 2018
  Awarded to top student-voted project across department
  Project: The Austere: Subsistence Farming and Micro-Housing in the Instaserf Era

- **Chicago Studio Award (Honorable Mention)**, 2017
  Awarded to top project across department
  Project: Fractal City: A Vertical Art Museum for Fulton Market, Chicago
  Collaboration with Melika Hajishafieiha

TEACHING

Classes as Instructor of Record:

- ARTD 218 Interaction Design Foundation, Spring 2023

Invited Reviewer

- LA 5XX Future Natures, Prof. David Lyle Hays, Spring 2023

- Experimental Computational Architecture, Artificial Intelligence Seminar, University of Stuttgart, Prof. Thomas Wortmann, Spring 2022

Classes as Co-Instructor:

- DCH 421 Community Engagement and Heritage Education in a Digital World, Prof. Georgios Artopoulos, Spring 2022

PUBLICATIONS

Peer-Reviewed Articles:

- ”Scan-To-Ar: from Reality-Capture to Participatory Design Supported by AR”. In Giordano A., Russo, M., Spallone, R. (eds), Representation Challenges: New Frontiers of AR and AI Research for Cultural Heritage and Innovative Design (IT: FrancoAngeli) DOI: 10.3280/oa-845-c238

- ”Immersive Computing and Crowd Simulation Techniques in Modelling Urban Commons.”, International Journal of E-Planning Research, vol. 8, no. 1, pp. 35–49, 2019

Not Peer-Reviewed or Abstracts in Conference Proceedings:

- ”Memory in Uncertainty, Web Preservation in the Polycrisis: A New Design Congress Report”, New Design Congress, 2022, Editor

- “Scan-to-AR: from reality-capture to participatory design supported by Augmented Reality” presented at the Representation for Enhancement and Management through Augmented Reality and Artificial Intelligence: Cultural Heritage and Innovative Design 2021 Conference, 12-13 October 2021, organised by Università degli Studi di Padova, Sapienza Università di Roma and Politecnico di Torino (https://reaachid.wixsite.com/2021)

- ”#The-New-Aesthetic: Objects in Mirror are Much Closer than They Appear.”, New Models Codex Y2K20, 2021, New Models, Article Author

PRESENTATIONS

At Conferences:

- ”REAACH-ID Symposium 2021: AI/AR For Space Recognition, Valorization, Design, Monitoring, And Management”, Sicily/Webinar, October 12-13, 2021, `https://reaachid.wixsite.com/2021`

- ”Developing Wikar AR”, DARIAH Open Working Group Meeting: Digital Practices For The Study Of Urban Heritage, 2021, `https://doi.org/10.5281/zenodo.5769870`

- ”Collective Data Management and Social Computation (Wikar + ClowderBridge)”, Clowder All Paws, Urbana/Webinar, September 20, 2020

Academic Workshops:

- ”The Patio Walk : “Patio Walk: sharing Tangible and Intangible Heritage in Córdoba””, Dariah ERIC UDigiSH WG, 2022, Presenter, Coordinator

- ”Use of ICT for community building actions towards the reactivation of urban heritagescapes in South European cities, Palermo, Italy”, Dariah ERIC UDigiSH WG, 2021, Presenter, Coordinator

ORGANIZATIONS

New Design Congress   2021-present
Independent Research Group

· A research organisation that recognises all infrastructure as expressions of power, and sees interfaces and technologies as social, economic, political and ecological accelerants. https://newdesigncongress.org/en/

New Models   2019-2021
New Media Theory/Criticism

· Attended discussion panels about emerging technologies and opportunities for activism
· Wrote for and helped organize first publication (New Models Codex 2020)

The Haunted PS1   2020-present
Indie Game Collective

· Organized multiple shipped collaborative game projects
· Built tools/plugins for data management, dynamic linking of software
· Technical/Creative lead role and support for projects in the community

QUIPIT: Critical Architecture Student Group   2014-2019
Student Organization for Discussions, Workshops, Exhibitions

· Lead student discussions about issues in architecture, representation, and society
· Organized multiple exhibitions and public events in coordination with the architecture dept and local businesses
· Designed and built interior installations, furniture for popups, interactive technologies for dissemination (VR+AR)

CREATIVE WORKS: EVENTS

- OTHER MATTER @ Heft/Hüttenberg via Günther Domenig: DIMENSIONAL, Wikar AR Sculpture Public Installation, Production Direction, University of Applied Arts in Vienna, 2022

- Eva Schlegel May Installation (+ DARIAH conference), Wikar AR Sculpture Public Installation, Dornbirn, 2022

- Munich Academy of Fine Arts Sculpture Studio with Peter Kogler, Wikar AR Sculpture Public Installation, Graz, Austria, 2022

- Calvary Club Energy Utilization Visualization, Wikar AR Architecture + Scientific Visualization, Development, February 2022
  Allowed users to visualize the simulated per-month energy usage of each room in a 3D Revit file for a historic building. Created a fully dynamic 3D clipping tool to inspect the interior and a GUI slide to determine the month.
  Features: Dynamic User-Operated Section Cut Tool in Mobile, Section Cut Shader for arbitrary meshes using 3D Signed Distance Fields, Optimized CSV parsing, Mesh Generation, Dynamic Coloring (at runtime)
  [YouTube Video]
  [YouTube Video 2]
  [Project Link]

- Eli Joteva Magnetic Field, AR in Gallery, Technical Production (Visualization, Programming), September 2021

- The Pavilion 2 with Eva Schlegel, Wikar AR Installation, Lead Programmer, App Developer, September 2021
  [Eva Schlegel's Website]

- AR App Development for Erwin Wurm's "Millisecond Sculpture Series", "The Pavilion", Scuola Nazionale di Cinema, Palermo, Italy, July 15-December 30, 2021
  [Event Details]

- AR App Development for Stephen Cartwright's "Timeline Atlas Project", Art + Design Faculty Exhibition, Krannert Art Museum, UIUC, October 31-December 7, 2019

- "GucciBytes: Architectural Fictions and Forgeries," exhibition and zine, UIUC, September 26-31, 2019

- "Recovering Urban Memory" exhibition for Dong Gong's Plym Studio Fellowship, UIUC, April 29, 2019

- "Digital Picnic / Bezeliness Intensifies" exhibition, UIUC, November 4, 2018 - January 20, 2019

- "Historic Nicosia. Climate Change Hot Spot: Future's Extremes" interactive installation, exhibited at the Cities exhibition of the Seoul Biennale of Architecture and Urbanism, September 1-November 5, 2017

SOFTWARE PUBLICATIONS

- C.H.A.I.N.G.E.D (Pending Game Release), 2023

- The Haunted PS1 Starter Kit [Automations Suite and Unity Framework], 2023

- Cordoba Patio Walk Interactive Survey Publication [Web Application], Lead Developer, 2023, [Link]

- Madvent 3: Necrosis (PC) [Video game],Launcher Lead Developer, 2022, [Link]

- Dariah Cloud Web Data Collection Tool [Web Application], Lead Developer 2022, [Link]

- Cordoba Court (Web) [Video game / Survey Software], 2022, [Link]

- Haunted PS1 Demo Disk: Spectral Mall (PC) [Video game], Launcher Lead Developer, September 2022, [Link]

- The People's Tree 2 (Web) [Video game], Lead Developer, November 2021, [Link]

- Haunted PS1: 2Madvent2Calendar (PC) [Video game], Launcher Lead Developer, November 2021, [Link]

- Haunted PS1: Demo Disk 2021 [Video game], Lead Programmer, March 2021, [Link]

- The People's Tree (Web) [Video game], Lead Developer, November 2020, [Link]

- Haunted PS1: Madvent 2020 (PC) [Video game], Launcher Lead Developer, November 2020, [Link]

- Rococo (WebGL) [Video game], Lead Developer, June 2020, [Link]

- C.H.A.I.N (PC) [Video game], Lead Developer, October 2020, [Link]

- Minotaur (WebGL + PC) [Video game], Lead Developer, April 2020, [Link]

TECHNICAL STRENGTHS

Development:	10+ years in architecture, art, design, software development, project management
Programming Languages:	C, C#, Python, JavaScript, R
Computation:	Algorithm design, complexity analysis, network & statistical analysis
Parallelization & Optimization:	OMP, MPI, CUDA, Compute Shaders (GPU), Supercomputer operation
Artificial Intelligence	Novice with OpenAI GPT-4 API, Tensorflow, Midjourney API, Whisper
Interaction Design:	Unity 3D, Godot, Full-Stack Web (HTML,CSS,JS), MaxMSP, HLSL
Data Science:	Data mining, analytics, NLP, visualization, Python implementations and frameworks
Fabrication:	CNC, 3D printing, precision woodworking, prototyping, and assembly
Design:	Adobe Suite, CAD, Blender, Rhinoceros, Grasshopper