

SHORT CURRICULUM VITAE

David Newton

Assistant Professor
University of Nebraska–Lincoln
College of Architecture
ARCH 246, UNL, 68588-0106
402 419 8147

1. EDUCATION

a. Graduate Degrees

2018 Master of Computer Science McGill University
2006 Master of Architecture Rice University

b. Undergraduate Degrees

2001 Bachelor of Science in Design Arizona State University

2. PROFESSIONAL APPOINTMENTS

a. Academic Appointments

2017 – Present

Assistant Professor
College of Architecture
University of Lincoln Nebraska

2013 – 2016

Assistant Professor
The School of Architecture
McGill University

2012 – 2013

Clinical Assistant Professor, Barrett Honors Faculty
The School of Arts, Media, and Engineering
& The Design School
Arizona State University

2012 – 2013

Faculty Associate
College of Architecture and Landscape Architecture
The University of Arizona

2009 – 2012

Lecturer
Architecture Program
Arizona State University

2007 – 2009

Adjunct Professor
Architecture Program
University of Minnesota

b. Professional Appointments

2006 July – 2007 Aug

Junior Associate Architect
Diller Scofidio + Renfro Architects

2001 June – 2001 Sep

Intern Schnieder Gadberry & Shae Architects

3. TEACHING

1. TEACHING PRESENTATIONS, PAPERS, EXHIBITIONS

a. Double-Blind Peer-Reviewed Conference Presentations

- Newton, David William. 2022. "Integrating Service-Learning Earlier in Architectural Curriculums through Engaged Design." Paper presented at the *ACSA 110th Annual Meeting: Empower, Virtual Conference, May 18-20, 2022*. Acceptance rate = 24%

- Newton, David William. 2021. "Fostering Augmented Intelligence in Architectural Education to Address Complexity." Paper presented at the *2021 AIA/ACSA Intersections Research Conference: Communities, Virtual Conference, Sept. 29 – Oct. 1, 2021*. Acceptance rate = 27%
- Newton, David William. 2018. "Balancing Act: Techniques and Technologies for Managing Multiple-Objective Problems in a Comprehensive Studio Context." Paper presented at the *2018 ACSA Fall Conference: Play with the Rules, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, 11-13 October 2018*. Acceptance rate = 48%

b. Double-Blind Peer-Reviewed Conference Papers

- Newton, David William. 2022. "Integrating Service-Learning Earlier in Architectural Curriculums through Engaged Design." In *Proceedings of the ACSA 110th Annual Meeting: Empower, Virtual Conference, May 18-20, 2022*, 85-94. Washington DC: ACSA. Acceptance rate = 24%
- Newton, David William. 2021. "Fostering Augmented Intelligence in Architectural Education to Address Complexity." In *Proceedings of the 2021 AIA/ACSA Intersections Research Conference: Communities, Virtual Conference, Sept. 29 – Oct. 1, 2021*, 34-42. Washington DC: ACSA. Acceptance rate = 27%
- Newton, David William. 2018. "Balancing Act: Techniques and Technologies for Managing Multiple-Objective Problems in a Comprehensive Studio Context." In *Proceedings of the 2018 ACSA Fall Conference: Play with the Rules, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, 11-13 October 2018*, 71-78. Washington DC: ACSA. Acceptance rate = 48%

c. Exhibitions with External Partners

- **May 5th - June 1st, 2022, Arch 411:** Student work was exhibited for the second year at the Gere Library.
- **April 30th - June 1st, 2021, Arch 411:** Student work was exhibited at the Gere Library branch.
- **May 14th - June 28th, 2019, Arch 411:** Student work at Nebraska Innovation Campus Main Hall.
- **Dec 6th, 2018 - April 1st, 2019, Arch 310:** Student work was exhibited at the International Quilt Museum and Study Center.
- **Dec 6th, 2017 - April 20th, 2018, Arch 310:** Student work was exhibited at the Great Plains Art Museum in Lincoln.

2. STUDENT AWARDS

- **Nov 2021, Arch 411:** The Society of American Registered Architects (SARA), National Student Merit Award, Students: Allie McAndrews and Austin Riggins
- **Aug 2021, Arch 411:** AIA Nebraska, Emerging Professional Merit Award, Students: Allie McAndrews and Austin Riggins
- **Aug 2020, Arch 411:** AIA Nebraska, People's Choice Award for the Emerging Professional - Unbuilt Category, Students: Quinlan McFadden, Mathew Gager, Sawyer Kuhl
- **Nov 2020, Arch 411:** The Society of American Registered Architects (SARA), Honorable Mention, Students: Andres Villegas and Brenton Rahn
- **Aug 2019, Arch 411:** ACSA Steel Competition, First Place Prize, Students: Andres Villegas and Brenton Rahn
- **May 2019, Arch 411:** SHG Design Concepts + DRI Design, First Place Scholarship Award, Students: Andres Villegas and Brenton Rahn

3. MENTORED STUDENT PUBLICATIONS

- **May 2021:** Reeh, Chris - Thesis published in "The Routledge Companion to Artificial Intelligence in Architecture"

4. RESEARCH

1. UNIVERSITY-FUNDED RESEARCH

a. Current Funding

- **Nov 2021- Jan 2023**, College of Arts and Sciences (CAS) Research Impact and Engagement Grant for \$10,000 for "3D Learning for Automated Detection of Ancient Maya Archaeological Sites in Lidar Data" (**Role: CO-PI**)
- **June 2020 - June 2022**, Professorship \$20,000 University of Nebraska-Lincoln College of Architecture. (**Role: PI**)

b. Current Funding Applications Pending Decisions

- **April 2022**, UNL Grand Challenges Catalyst Award for \$2,000,000 for "3D Printing with Alternative Materials for Resilient, Sustainable, and Society-Friendly Housing" (**Role: CO-PI**)

c. Past Funding

- **Aug 2020 – Dec 2021**, University of Nebraska-Lincoln Layman Grant for \$10,000 for "Machine Learning for Automated Detection of Ancient Maya Archaeological Sites in Lidar Data" (**Role: CO-PI**)
- **Aug 2015**, McGill Faculty of Engineering SURE Grant \$10,000
- **July 2013**, McGill Faculty of Engineering Grant \$25,000

2. EXTERNAL FUNDING

a. Current Funding

- **Jan 2022-Jan 2024**, National Science Foundation Grant for \$147,934 for "Applying 3D Deep Learning to Lidar Data for Automated Detection of Archaeological Sites in Tropical Regions" (**Role: CO-PI**)

b. Past Funding

- **Oct 2017 – Dec 2021**, The Nebraska Initiative-Benchmarking & Beyond - Funding: \$121,831.00 (**Role: PI**)
- **Oct 2017 – April 2019**, Commercial Codes and Energy Study - Funding: \$36,034 (**Role: PI**)

3. PRESENTATIONS & LECTURES

a. Double-Blind Peer-Reviewed Conference Presentations

- Newton, David. 2021. "Visualizing Deep Learning Models for Urban Health Analysis." Paper presented at the *39th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Towards a New Configurable Architecture, Faculty of Technical Sciences, Novi Sad, Serbia, September 8-10, 2021*. Acceptance rate = 32%
- Richards-Rissetto, Heather, David Newton, and Aziza Al Zadjali. 2021. "A 3D Point Cloud Deep Learning Approach Using Lidar to Identify Ancient Maya Archaeological Sites." Paper presented at the *28th CIPA Digital Heritage symposium, Beijing, China, Aug 28-Sept 1, 2021*. Acceptance rate = 63.4%
- Newton, David William. 2020. "Anxious Landscapes: Correlating the Built Environment with Mental Health through Deep Learning." Paper presented at the *40th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA): Distributed Proximities, Virtual Conference, October 24-30, 2020*. Acceptance rate = 25%

- Newton, David, Dan Piatkowski, Wes Marshall, and Atharva Tendle. 2020. "Deep Learning Methods for Urban Analysis and Health Estimation of Obesity." Paper presented at the *38th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Anthropologic - Architecture and Fabrication in the Cognitive Age, Technische Universitt, Belin, Germany, September 15-17, 2020*. Acceptance rate = 32%
- Newton, David William. 2019. "Deep Generative Learning for the Generation and Analysis of Architectural Plans with Small Datasets." Paper presented at the *37th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Architecture in the age of the 4th Industrial Revolution, University of Porto, Porto, Portugal, September 11-13, 2019*. Acceptance rate = 34%
- Newton, David William, Bacon, Mark, and Sophlin, Zack. 2019. "Generative Design in the Middle of Nowhere." Session Lecture for the *AIA Oklahoma Conference, Tulsa, Oklahoma, October 3-4, 2019*. Acceptance rate = Not Available
- Newton, David William. 2018. "Multi-Objective Qualitative Optimization (MOQO) in Architectural Design." Paper presented at the *36th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Computing for a better tomorrow, Lodz University of Technology, Lodz, Poland, September 17-21, 2018*. Acceptance rate = 53%
- Newton, David William. 2018. "Accommodating Change and Open-Ended Search in Design Optimization: Dynamic Interactive Multi-Objective Evolutionary Algorithms for Architectural Design." Paper presented at the *33rd Annual Computer-Aided Architectural Design Research in Asia (CAADRIA) Conference: Learning, Prototyping, and Adapting, Tsinghua University, Beijing, China, May 17-19, 2018*. Acceptance rate = 46%

b. Double-Blind Peer-Reviewed Conference Poster Presentations

- Newton, David, and Piatkowski, Dan. 2020. "Estimating Health Measures from Satellite Images of the Built Environment with Deep Learning." Poster presented at the *Annual Active Living Conference, Orlando, Florida, February 2-5, 2020*. Acceptance rate = Not Available

c. Invited Lectures

- Newton, David. "Deep Learning in Urban Analysis for Health." Presentation for *Sasaki Architects Lecture Series, Online, Aug 12, 2021*.
- Newton, David. "Deep Learning for Urban Health Analysis." Presentation for the *Future City Summit, Online, May 4-5, 2021*.
- Newton, David. "Deep Generative Design in Architecture." Presentation for the *Technology | Architecture + Design Journal author's panel at the ACSA 108th Conference, Online, June 15, 2020*.
- Newton, David. "Machine Learning and Affordable Housing." Presentation for the *2019 UNL Arch Thesis Exhibition in Collaboration with Omaha by Design, Omaha, Nebraska, June 13, 2019*.
- Newton, David. "Recent Work with the Computational Architecture Research Lab (CARL)." Presentation for monthly lecture series of *BVH Architects, Lincoln, Nebraska, May 12, 2018*.
- Newton, David. "Machine learning and Evidence-Based Design." Lunchtime presentation for *Leo Daily Architects, Omaha, Nebraska, August 8, 2017*.
- Newton, David. "Robotic Fabrication Processes." Presentation for *Tectonics Symposium at L'Université du Québec à Montréal (UQAM), Montreal, QC, January 20, 2015*.
- Newton, David. "Meta-Design." Presentation for the *McGill University lecture series in architecture, Montreal, QC, January 14, 2014*.

- Newton, David. "Performative Design." Presentation for lecture series of the *Arts Media and Engineering Program at Arizona State University, Tempe, AZ, March 18, 2013*.
- Newton, David. "Cultured Natures." Presentation for the *Architecture Program at the University of British Columbia, Vancouver, BC, April 7, 2010*.

d. Panel Discussions

- "Architectures of Care, Computational Design and Health," a panel discussion presented at the *40th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA), OCT 28, 2020*
- "Affordable Housing Now," a panel discussion presented at the *2019 UNL Arch Thesis Exhibition in Collaboration with Omaha by Design, Omaha, Nebraska, June 13, 2019*

4. PUBLICATIONS

a. Double-Blind Peer-Reviewed Journals

- Newton, David. "Identifying Correlations Between Depression and Urban Morphology through Generative Deep Learning." *International Journal of Architectural Computing*, (May 2022). <https://doi.org/10.1177/14780771221089885> Acceptance rate = Not Available
- Richards-Rissetto, Heather, David Newton, and Aziza Al Zadjali. 2021. "A 3D Point Cloud Deep Learning Approach Using Lidar to Identify Ancient Maya Archaeological Sites." *ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, VIII-M-1(2021):133-139. doi: 10.5194/isprs-annals-VIII-M-1-2021-133-2021. Acceptance rate = 63.4%
- *Newton, David. "Generative Deep Learning in Architectural Design." *Technology | Architecture + Design*, 3(2) (2019):176-189. <https://doi.org/10.1080/24751448.2019.1640536>. Acceptance rate = 16%

b. Double-Blind Peer-Reviewed Conference Papers

- Newton, David. 2021. "Visualizing Deep Learning Models for Urban Health Analysis." In *Proceedings of the 39th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Towards a New Configurable Architecture, Faculty of Technical Sciences, Novi Sad, Serbia, September 8-10, 2021*, Volume 1 527-536. Acceptance rate = 32%
- Newton, David William. 2020. "Anxious Landscapes: Correlating the Built Environment with Mental Health through Deep Learning." In *Proceedings of the 40th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA): Distributed Proximities, Virtual Conference, October 24-30, 2020*, 130-139. Delaware: ACADIA. Acceptance rate = 25%
- Newton, David, Dan Piatkowski, Wes Marshall, and Atharva Tendle. 2020. "Deep Learning Methods for Urban Analysis and Health Estimation of Obesity." In *Proceedings of the 38th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Anthropologic - Architecture and Fabrication in the Cognitive Age, Technische Universitt, Belin, Germany, September 15-17, 2020*, Volume 2 297-304. Berlin: eCAADe. Acceptance rate = 32%
- Newton, David William. 2019. "Deep Generative Learning for the Generation and Analysis of Architectural Plans with Small Datasets." In *Proceedings of the 37th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Architecture in the age of the 4th Industrial Revolution, University of Porto, Porto, Portugal, September 11-13, 2019*, Volume 2 21-28. Porto: eCAADe, SIGraDi, FAUP. Acceptance rate = 34%

- Newton, David William. 2018. "Multi-Objective Qualitative Optimization (MOQO) in Architectural Design." In Proceedings of the 36th Annual Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference: Computing for a better tomorrow, Lodz University of Technology, Lodz, Poland, September 17-21, 2018, Volume 2 187-196. Lodz: eCAADe, Lodz University of Technology. Acceptance rate = 53%
- Newton, David William. 2018. "Accommodating Change and Open-Ended Search in Design Optimization: Dynamic Interactive Multi-Objective Evolutionary Algorithms for Architectural Design." In Proceedings of the 33rd Annual Computer-Aided Architectural Design Research in Asia (CAADRRIA) Conference: Learning, Prototyping, and Adapting, Tsinghua University, Beijing, China, May 17-19, 2018, Volume 2 175-184. Hong Kong: CAADRRIA. Acceptance rate = 46%

c. Book Chapters

- Newton, David. "Chapter 7: Deep Learning in Urban Analysis for Health." in *Artificial Intelligence in Urban Planning and Design*, edited by Imdat As and Prithwish Basu, 121-137. Amsterdam: Elsevier, 2022. Acceptance rate = N/A
- Newton, David. "Chapter 14: Dynamic and Explorative Optimization for Architectural Design." in *Routledge Companion to AI and Architecture*, edited by Imdat As and Prithwish Basu, 280-300. Amsterdam: Elsevier, 2021. Acceptance rate = N/A
- Marshall, Wes, Norman Garrick, Dan Piatkowski, and David Newton. "Chapter 17: Community design, Street Networks, and Public Health." in *Advances in Transportation and Health: Tools, Technologies, Policies, and Developments*, edited Mark Nieuwenhuijsen and Haneen Khreis, 371-388. Amsterdam: Elsevier, 2020. Acceptance rate = N/A

d. Magazines

- Newton, David William. "Digital Provocations: A Review of the Archeology of the Digital Exhibit at the CCA." In *Canadian Architect Magazine*, August 2014 issue.

e. Design Work Featured in Books

- *Performative Landscapes* project featured in:
 - Newton, David William. "Performative Landscapes." *Future Arquitecturas Magazine*, 2009, 30-31.
 - Newton, David William. "Performative Landscapes." in *Bracket – Almanac 1: On Farming*, edited by White, Mason, and Maya Przybylski, 225-232. New York-Barcelona: ACTAR Publishers, 2010.
- *Meta Patch* project featured in:
 - Newton, David William and Joe Kellner. "Meta-Patch." in *Morpho-Ecologies*, by Hensel, Michael, and Achim Menges. Architectural Association, 184-195. London: Architectural Association, 2006.
 - Newton, David William and Joe Kellner. "Meta-Patch." in *Techniques and Technologies in Morphogenetic Design, Architectural Design 76*, No. 2, edited by Hensel, Michael, Achim Menges, and Michael Weinstock. (March/April 2006): 81-81.
 - Newton, David William and Joe Kellner. "Meta-Patch." in *Versatility and Vicissitude: Performance in Morpho-Ecological Design, Architectural Design 78*, No. 2, edited by Hensel, Michael, Achim Menges, and Michael Weinstock. (March/April 2008): 52.

- Newton, David William and Joe Kellner. "Meta-Patch." in *Manufacturing Material Effects: Rethinking Design and Making in Architecture*, edited by Kolarevic, Branko, and Kevin Klinger, 200. New York: Routledge, 2013.
- *Tactile Spectrum* project featured in:
 - Newton, David William, Sky Lannigan, and Judson Morre. "Tactile Spectrum." in *Everything Must Move: 15 Years at Rice School of Architecture 1994-2009*, edited by Luke Bulman and Jessica Young, 150. Houston, TX: Rice University, 2009.

5. AWARDS

a. UNL College of Architecture

- May 2022, Faculty Award for Excellence in Research and Creative Scholarship

5. OUTREACH, SERVICE, AND ENGAGEMENT

1. COLLEGE OF ARCHITECTURE

- May 2022-Jan 2023, Dean of College of Architecture Search Committee
- Nov 2021-Present, PAC Philosophy of Design Informed by Technology and Data Gathering
- Aug 2018-Dec 2020, Member of Facilities and Resources College Committee
- Aug 2018-May 2019, Member of Teaching Initiatives Task Force

2. ARCHITECTURE PROGRAM

- Nov 2021-April 2022, Professor of Practice Search Committee Member
- Aug 2021-Present, Member of Faculty Affairs Committee
- Nov-May 2022, Co-Coordinator for Arch 411
- Aug 2019-May 2020 Chair of Student Affairs Committee
- Jan-May 2019, Coordinator for Arch 411
- Aug 2017-May 2018, Member of Faculty Affairs Committee
- Aug 2017-May 2019, Member of Student Affairs Committee
- Aug-Dec 2017, Coordinator for Arch 310

3. UNIVERISTY

- Nov 2019-April 2020, Member of the Faculty Search Committee for the Carson Center for Emerging Media Arts

4. LOCAL ENGAGEMENT

- Aug- 2017 – May 2018, Member of exhibition review committee at the International Quilt Museum

5. NATIONAL AND INTERNATIONAL

a. Editorial Board Memberships

- Oct 2021-Present, Member of the Technology | Architecture + Design Journal editorial board

b. Conference, Journal, and Book Reviews

- 2021 March, Peer Reviewer for TAD Journal
- 2021 Feb, Peer reviewer for eCAADe (Education and research in Computer Aided Architectural Design in Europe)
- 2020 Jun Artificial Intelligence for Engineering Design, Analysis and Manufacturing
- 2020 Jun Design Science
- 2020 Feb, Peer Reviewer for eCAADe (Education and research in Computer Aided Architectural Design in Europe)

- 2020 Jan, Peer Reviewer for Automation and Construction Journal
- 2019 Oct, Peer Reviewer for TAD Journal
- 2019 Sep, Peer Reviewer for TAD Journal
- 2019 Jan, Peer reviewer for CADDRIA (The Association for Computer-Aided Architectural Design Research in Asia)
- 2019 Feb, Peer reviewer for eCAADe (Education and research in Computer Aided Architectural Design in Europe)
- 2018 Peer reviewer for eCAADe (Education and research in Computer Aided Architectural Design in Europe)