

Joshua H. Treadway | Tenure-track Professor UCF | Licensed Architect State of Florida

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Education:

May 2017 (**Masters of Architecture**) Virginia Polytechnic Institute and State University

- College of Architecture and Urban Studies
- Thesis: The Civic Life of the City Block

May 2013 (**Bachelors of Design**) University of Florida

- College of Design, Construction and Planning

May 2011 (**Associates of Art**) Valencia College

- Articulated Pre-Major: Architecture

Exhibitions:

October 2016 – December 2016: The Branch Museum of Architecture and Design in Richmond, VA

Research Interest:

The effects of grander systems (natural forces, building codes, legislative bills, etc.) on the city and its understanding as a process of a project.

Computational Design builds that inform systems of design, by either testing designs or revealing underlying structures.

Research Experience:

2023 – Current: Architecture | SVAD | CAH | UCF: Assistant Professor of Architecture

- Aug 2023 -Current: **Generative Modeling and Architecture Practice:**
 - Working with an International firm to create Generative tools to help Architecture Practice.
 - Using visual generative modeling (Grasshopper and Dynamo) to analyze efficiency and effectiveness of built environment and architectural design, with focus on machine learning.
 - Aug 2024 – Independent Study focused on exploring and creating new generative tools.
 - Aug 2025 – Independent Study focused on reduction of complexity while using analysis tools like Ladybug. A focus on machine learning to deal with reduction of complexity.
- Aug 2024 - **Current: AI-Driven Tracking and Analysis of Human Movement within Built Environments for Enhanced Placemaking**
 - Comprehensive Data Collection: Gather detailed data on key aspects of the built environment, including spatial boundaries, lighting profiles, nature prevalence, acoustic profiles, and weather conditions. Track human movement and placement within the environment to understand how these factors influence user behavior and interaction with space.
 - AI-Driven Data Simplification: Apply AI pattern recognition to filter out redundant or static information, such as consistent environmental features that do not change (e.g., building structures). Simplify the representation of human movement by focusing on essential data points, reducing complexity while retaining critical insights relevant to placemaking.
 - Environment-Person Differentiation and State Recognition: Develop robust AI algorithms capable of distinguishing between static elements of the environment and dynamic human activities. Achieving the reach goal of identifying and classifying human states (standing, sitting, lying down) based on simplified data, which is essential for creating responsive and adaptable public spaces.
 - Enhanced Placemaking: Use the insights gained from the data to inform better placemaking decisions, optimizing public and private spaces to enhance user experience, safety, and well-being.
 - Jan 2026 – Installation of human tracking hardware in UCF SVAD Art Gallery
 - Aug 2025 – Co-led a team of UCF Computer Science students to develop hardware and software to map, track and visualize human use of a public space.
- Oct 2023 - Current: **AI use in Architectural Design and Practice:**

- Working with local architectural firm, HKS, to outline a study to experiment on easily accessible AI programs, such as Midjourney, ChatGPT, and PromeAI to understand usefulness and effectiveness.
 - Focusing on the role of the architect as a worker to the role of an editor. What rules and goals to have in this practice.
- Dec 2024 - May 2025: **MARS-SCOPE**: Mars Advanced Resource Simulation for Settlement Creation, Outreach & Public Education
 - Establishing a self-sustaining human presence on Mars represents one of humanity's most ambitious visions and greatest challenges [1]. While this vision has long captivated scientists, engineers, policymakers, and visionaries [2], Mars's extreme environment demands unprecedented innovations in life support systems, radiation protection, and resource management that go far beyond existing Earth-based solutions.
 - Mar 2025 – UCF STEM Day Workshop: Introduced our project to a group of K-12 students as a study of the educational aspect of our research.

2016 – 2017: VT ICAT 2016-2017 Major Sead Grant: **smART Field - Awarded**

- Design Researcher and Coordinator
- Faculty Director: Aki Ishida & Margarita McGrath
- Repurposing Virginia Techs Drill Field and creating an interactive and sustainable public space.

2008 – 2009: UCF Research Parkway: **Assistive Robotics**

- Technical Research Assistant
- Research Director: Aman Behal
- Developing sensor hardware and their mounting and interfacing with robotic arm.

2004 – 2006: Sarasota High School **MaST Research Institute**

- Student Researcher
- Faculty Advisor: Dr. Erb
- Research Electroactive Polymers (EAP) Actuators and their applications.

Lectures/Conferences/Panels:

Local:

August 2024 – **AIA Orlando Expo and Conference** – Speaker/Lecture: AI Practices in an Architectural Design Process.

State:

May 2025 – **UF DCP: AI and Cities Conference** – Speaker: AI is a Design Tool not a Design Solution: AI use in Design Practice and Education.

Aug 2024 – **UF BIM/AI Symposium** – Panel Discussion on AI's role in Architectural Practice.

Aug 2024 – **UF BIM/AI Symposium** – Workshop: Lunchbox and Grasshopper, AI Generative Modeling Complex Designs.

National:

Dec 2024 – **AIA National Conference in Boston** – Speak/Lecture: AI is not a Solution it is a Strategy, Architectural practice and AI generative modeling. – Applied, Missed.

Publishing:

National:

Sept 2025 – **ACSA114 Short Paper**: Evaluating Geometric Complexity and Energy Simulation Accuracy in Computational Design – Applied, Missed.

International:

June 2023 – **Technology and Design: AI Generative** - AI is not a Solution it is a Strategy, Architectural practice and AI generative modeling. – Applied, Missed.

Grant:

Local:

Dec 2025 – **Pabst Steinman Creative Futures Award:** AI-Driven Tracking and Analysis of Human Movement within Built Environments for Enhanced Placemaking - Applied - Awaiting

Feb 2025 – **UCF Internal SEED Equipment Grant:** AI-Driven Tracking and Analysis of Human Movement within Built Environments for Enhanced Placemaking - Applied - Missed

Dec 2024 – **UCF Internal SEED Grant:** MARS-SCOPE: Mars Advanced Resource Simulation for Settlement Creation, Outreach & Public Education – Applied – Missed

2019 and 2022 – **University of Central Florida Technology Fee Award** – Co-Authored with Tommy James

International:

Mar 2025 – **Schmidt Sciences Humanities and AI Grant:** AI-Driven Tracking and Analysis of Human Movement within Built Environments for Enhanced Placemaking - Applied – Missed

Teaching Experience:

August 2023 – Current: **Assistant Professor of Architecture** (Advanced Digital, Architectural Design 5-8, Architectural History 3)

August 2017 – May 2023: **Adjunct Faculty** (Theory 2, Arch. Design 7 & 8, and Environmental Technologies 2)

University of Central Florida (UCF Connect) (1800 S. Kirkman Rd, Orlando, FL 32817)

Supervisor: Allen Watters (407) 582-1487

- To develop and implement lesson plans that are in line with the department's curriculum and the college's policies.
 - Teach concepts of Architecture using a variety of educational techniques.
 - Explore technological assistance for the student's learning environment.

August 2023 – Current: **Part-time Faculty** (Arch Design 2, Arch. Theory 1)

August 2017 – July 2023: **Fulltime Faculty** (Arch Design 1-4, Arch. History 1-2, Arch. Theory, Intro to Digital Arch.)

Valencia College (1800 S. Kirkman Rd, Orlando, FL 32817)

Supervisor: Allen Watters (407) 582-1487

- To develop and implement lesson plans that are in line with the department's curriculum and the college's policies.
 - Teach concepts of Architecture using a variety of educational techniques.
 - To give guidance and support to students through their educational path.

August 2015- May 2017: **VT Graduate Teaching Assistantship**

Virginia Tech (190 Alumni Mall • Blacksburg, Virginia 24061)

Supervisor: Hunter Pittman (540) 231-1204

- To assist in daily teaching tasks for lesson development and implementation.

Certificates:

Mar 2024 – AIM Certificate: Affordable Instructional Material Initiative.

Dec 2024 – UCF IDL 6543 – Digital Certificate for Teaching

Student Travel Programs:

Oct 2023 – Present – Chicago Arch. Design 7 Semester Urban Studio – Organizer and Leader:

- 5 days in Chicago studying architectural history and developing current studio projects. Firm and construction tours.

Aug 2024 – UCF Global Faculty Led Tokyo, Japan Architecture Study Abroad Program – Organizer and Leader – Proposed, Spring 2026

- 2-week tour to Tokyo and other Prefectures. Visiting Historical and Contemporary notable architectural work.
- Visits to local universities, firms and construction tours.
- Accompanying a design studio work in the US.

Service to the College:

Mar 2025: UCF Research Symposium Judge

Aug 2024 – Current: SVAD Marketing Committee - Member

Aug 2023 – Current: AIA Academic Alliance – **UCF Faculty Ambassador**

Aug 2019 – Current: UCF Architecture Fabrication Lab – **Manager**

Aug 2023 – Aug 2024: AIAS UCF Chapter – **Faculty Advisor**

Dec 2023 – May 2023: UCF Architecture Faculty Hiring Search Committee – **Member**

Aug 2018 – Jul 2023: AIAS Valencia College Chapter – **Faculty Advisor**

Aug 2020 – Jul 2023: AIA Academic Alliance – **Valencia College Faculty Ambassador**

Aug 2019 – Jul 2021: Valencia College | College of Arts and Humanities | General Education Curriculum Committee – **Architecture Program Rep.**

Professional Experience:

Feb 2020 – Current: **Founder, Owner, and Architect**

+Design LLC. (2020 Crescent Blvd, Orlando, FL 32817)

Project: Residential and Commercial

- Administrative and implementation of design practice and project needs.
 - Maintaining firm day-to-day operation and promoting firm services.
 - Project coordination from design development to construction administration.

May 2016 – December 2017: **Project Coordinator** (Hybrid)

OTJ Architects (555 11th St NW #200, Washington, DC 20004)

Supervisor: Katherine Tong (202) 621-1391

Projects: Corporate, Commercial, Institutional, Residential, and Non-for-profit

- To assist in the day-to-day operation of design and construction project needs.
 - Perform all duties of an AV Department Head and assist in AV design solutions.
 - Perform all functions needed to complete each project, from proposal to design to construction.

Jul 2014 – Aug 2015: **Architect Intern**

Hall Architects (now Hall Darling Design Studio) 2168 Main St, Sarasota, FL 34237

Supervisor: Glenn Darling (941) 780-3997

Projects: Education, Institutional, Residential, Commercial, and Cooperation

- To assist in the day-to-day operation of design and construction project needs.
 - Digital Standards development and implementation for AutoCAD, Rendering, and Revit
 - Perform all functions needed to complete each project, from proposal to design to construction.

Jan 2014 – Jul 2014: **Intern/Project Coordinator**

Interplan LLC (220 E Central Pkwy # 4000, Altamonte Springs, FL 32701)

Supervisor: Laurel Martin (407) 645-5008

Projects: Commercial and Big Box Stores

- To assist in the day-to-day operation of the design and construction project needs.

- Site visits and as built drawing coordination.
- Implementation of design proposals to meet local building code.

Dec 2103 – Jul 2014: **Freelance Designer and CAD Technician**

Fielding Nair International (now Nair International) (16609 Blenheim Drive
Lutz, Florida, USA, 33549)

- Contact: (917) 406-3120

Projects: Education

- Help develop and assist in the change to Revit CAD standards.
 - Creation of parametric Revit families to meet the personal needs of the firm's projects.
 - Assist in implementation of Revit practices into firm procedures.

Construction Experience:

May 2020 – October 2022: **General Contractor & Main Builder**

Treadway Residence – Personal Residence – 2026 Crescent Blvd, Orlando, FL 32817

July 2005 – July 2007: **Welder and Electrician**

MTEC – Recycling Equipment Fabrication and Repair – Sarasota, FL

References:

Matthew Johnson, Architect and Principal

Winter Park Design, Inc.

P: (407) 733-7550 E: matt@wpd.com

Glenn Darling, Architect and Firm Owner

Hall Darling Design Studio

P: (941) 780-3997 E: gdarling@halldarling.com

Allen Watters, Director of Architecture Program | SAED

Valencia College

P: (407) 719-4677 E: dwatters@valenciacollege.edu

Rudy McDaniel, Director of School of Visual Arts and Design | CAH

University of Central Florida

P: (407) 823-2676 E: rudy@ucf.edu

Tommy James, Associate Professor, Architecture

University of Central Florida

P: (772) 538-5420 E: tommy.james@ucf.edu