Joshua Jordan

Curriculum Vitae

Department of Mathematics
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Education

2017–2023 **PhD in Mathematics**, *University of California – Irvine*, Irvine, CA
Thesis title: *Pluriclosed flow and generalized geometry*
Advisor: Prof. Jeffrey Streets

2013–2017 **BSc in Mathematics and Physics**, *Wright State University*, Dayton, OH

Employment

2023–2026 **NSF-RTG Postdoctoral Research Scholar**, *Univ. of Iowa*, Iowa City, IA
Grant: *Geometry and Topology at Iowa* (DMS-2038103)
Supervisor: Prof. Hao Fang

Teaching & Mentoring

Spring 2025 **Independent Study Instructor**, *University of Iowa*
Led an independent study for motivated undergraduate students in differential geometry. Used the book *Differential Geometry of Curves and Surfaces* by Manfredo do Carmo.

2023–2026 **Instructor of Record**, *University of Iowa*
Designed and led one (1) one-semester graduate course on complex differential geometry using *Complex Geometry: An Introduction* by Huybrecht.
Designed and led five (5) one-semester undergraduate courses including Calculus from Stewart's *Calculus* and Linear Algebra using Lay, Lay, and McDonald's *Linear Algebra and Its Applications*.

Fall 2023 **Graduate Seminar Instructor**, *University of Iowa*
Led a one-semester seminar for graduate students in Riemannian geometry. Used the book *Introduction to Riemannian Manifolds* by John Lee.

2017–2023 **Teaching Assistant**, *University of California – Irvine*
Assisted with instruction for undergraduate courses including Elementary Real Analysis, Calculus (single- and multi-variable), Advanced Linear Algebra, and Partial Differential Equations.

Research Experience

2023–2026 **NSF-RTG Postdoctoral Fellow**, *University of Iowa*
Grant DMS-2038103. Conducting research on fully nonlinear partial differential equations on Hermitian manifolds under Prof. Hao Fang.

2017–2023 **Research Assistant**, *University of California – Irvine*
Studied intrinsic geometric flows on non-Kähler manifolds under Prof. Jeffrey Streets.

Research Interests

Complex & Differential Geometry
Canonical metrics, non-Kähler geometry, generalized Kähler geometry, conformal geometry, algebraic geometry

Geometric Analysis & PDEs
Complex Monge-Ampère equations, non-concave equations, curvature flows, quasilinear systems

Mathematical Physics
Geometric flows from string theory

Publications

Pre-print / Submitted

- Jordan, J. "The parabolic split-type Monge-Ampère on split tangent bundle surfaces." *arXiv: 2507.07084.* Submitted to *Calc. Var. Partial Differential Equations* (July 2025).

Published

- Fang, H. & Jordan, J. "On canonical metrics of complex surfaces with split tangent and related geometric PDEs." *J. Reine Angew. Math.* **823** (2025) 255-289.
- Fang, H. & Jordan, J. "Split-type canonical metrics and related geometric PDEs." In *Surveys in Geometric Analysis*, editors. Tian,G.; Han, Q.; & Zhang, Z. pp. 1-34. Science Press Beijing. Beijing.
- Jordan, J. "Generalized geometry and pluriclosed flow." *UC Irvine. eScholarship*.
- Garcia-Fernandez, M., Jordan, J., & Streets, J. "Non-Kähler Calabi-Yau geometry and pluriclosed flow." *J. Math. Pures Appl.* **177** (2023) 329-367.
- Jordan, J. "A steady length functional for Ricci flow." *Proc. Amer. Math. Soc.* **149** (2021) 397-406.
- Jordan, J. & Streets, J. "On a Calabi-type estimate for pluriclosed flow." *Adv. In Math.* **366** (2020) Article 107097.

Talks and Presentations

- "Canonical metrics on complex surfaces with split tangent." *Differential Geometry Seminar.* University of California – Irvine. (29 May 2025).
- "Generalized geometry and pluriclosed flow." *Differential Geometry, Topology, and Special Structures.* Graduate College, City University of New York. (14 March 2025).
- "On canonical metrics of complex surfaces with split tangent and related geometric PDEs." *Prairie Analysis Seminar.* University of Kansas. (26 October 2024).
- "Non-Kähler Calabi-Yau geometry and pluriclosed flow." *Generalized Geometry in Interaction.* Instituto de Ciencias Matemáticas. Madrid, Spain. (14 June 2022).
- "Non-Kähler Calabi-Yau geometry and pluriclosed flow." *4th Geometric Analysis Festival.* Jeonbuk National University. (2022).

Service

2025–2026 **Treasurer**, *University of Iowa Postdoctoral Association (UIPDA)*
Responsible for record-keeping and financial solvency of the UIPDA.

Summer 2025 **Session Co-Organizer**, *Univ. of Iowa*
Co-organized the Early Career Session of the 2025 *Midwest Panorama of Geometry and Topology* at the University of Iowa. Supported by NSF-RTG grant DMS-2038103.

2024–2025 **Chair, Travel Awards Committee**, *UIPDA*
Responsible for developing evaluation criteria and recruiting evaluators for the UIPDA Travel Awards Program, which awarded $5000/yr for academic travel to postdoctoral scholars at the University of Iowa.

2021–2023 **Recording Secretary**, *UAW 4811 (formerly UAW 2865)*
Elected as a campus-level representative. Responsible for organizing meetings, taking minutes, and assisting in contract negotiations.