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

Teaching Experience

2023–2026 **Instructor of Record**, *University of Iowa*
Independently instructed five (5) undergraduate courses – including Calculus and Linear Algebra – and one (1) graduate course on complex differential geometry.

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 Scholar**, *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 and Differential Geometry
Canonical metrics, non-Kähler geometry, generalized Kähler geometry, conformal geometry, algebraic geometry

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

Mathematical Physics
Geometric flows from string theory

Publications

- Jordan, J. "The parabolic split-type Monge-Ampère on split tangent bundle surfaces." *arXiv: 2507.07084.* Submitted.
- 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

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.

2021–2023 **Recording Secretary**, *UAW 4811 (formerly UAW 2865)*
Elected by graduate student-workers of University of California – Irvine to be a representative in contract negotiations. Responsible for organizing meetings, taking minutes, and facilitating discussions related to academic labor conditions.