Stanford



Martin O'Connor

Software Dvlpr 3, Computational Medicine

NIH Biosketch available Online

SUPERVISORS

- Mark Musen

Bio

BIO

I am a senior software engineer specializing in semantic technologies for biomedical data. With over three decades of experience in software engineering—including more than 20 years at Stanford—my work focuses on developing scalable, standards-based infrastructure for scientific metadata, ontologies, and data integration. I currently lead the engineering of the CEDAR Workbench, a system widely adopted across NIH initiatives for generating FAIR-compliant metadata.

My research portfolio spans clinical decision support, biosurveillance, and semantic data management. I developed the Chronus II and SQWRL query languages, implemented SWRL functionality in Protégé, and led the architecture of the BioSTORM outbreak detection platform. My work on metadata management has been incorporated into several NIH-funded platforms, including HuBMAP and RADx.

My recent work focuses on creating infrastructure for lifecycle management of value sets—curated collections of standardized terms critical for metadata consistency and interoperability. This effort addresses a major shortcoming in biomedical data ecosystems by enabling collaborative authoring, version control, and reuse of semantic vocabularies across research domains.

CURRENT ROLE AT STANFORD

Research software developer at Stanford Center for Biomedical Informatics Research (BMIR)

EDUCATION AND CERTIFICATIONS

- M.Sc., University of Dublin, Trinity College , Computer Science (1993)
- B.A., University of Dublin, Trinity College , Computer Science (1989)

Publications

PUBLICATIONS

- **Knowledge Engineering for Open Science: Building and Deploying Knowledge Bases for Metadata Standards.** *AI magazine*
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