

## Dr Chris Mattmann

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*International Expert in Artificial Intelligence,  
Machine Learning and Data Science*



Dr Chris Mattmann is an experienced Senior Executive, has filled multiple C-Suite roles including Chief Technology Officer, Chief Data Officer, and Chief Research Officer across multiple industries and is Division Manager of the Artificial Intelligence, Analytics and Innovative Development Organization in the Information Technology and Solutions Directorate at NASA JPL. At JPL Chris is the Chief Technology and Innovation Officer and reports to the CIO. He manages advanced IT research and open source and technology evaluation and user infusion capabilities.

Chris is JPL's first Principal Scientist in the area of Data Science. The designation of Principal is awarded to recognize sustained outstanding individual contributions in advancing scientific or technical knowledge, or advancing the implementation of technical and engineering practices on projects, programs, or the Institution. He has over 23 years of experience at JPL and has conceived, realized and delivered the architecture for the next generation of reusable science data processing systems for NASA's Orbiting Carbon Observatory, NPP Sounder PEATE, and the Soil Moisture Active Passive (SMAP) Earth science missions. Chris' work has been funded by NASA, DARPA, DHS, NSF, NIH, NLM and by private industry and commercial partnerships. He was the first Vice President (VP) of Apache OODT, the first NASA project at the Apache Software Foundation (ASF) and he led the project's transition from JPL to the ASF.

He contributes to open source and was a member of the Board of Directors at the Apache Software Foundation (2013-18) and was one of the initial contributors to Apache Nutch as a member of its project management committee, the predecessor to Apache Hadoop. Chris is the progenitor of the Apache Tika framework, the digital "babel fish" and widely used content analysis and data analytics framework. Chris contributes to TensorFlow, Google's machine learning platform and has recently finished a book on Machine Learning for TensorFlow, 2nd edition published by Manning Publications. Chris is an expert in Artificial Intelligence.

Chris is the Director of the Information Retrieval & Data Science (IRDS) group at USC and Adjunct

Research Professor (“Full Professor”). He teaches and has incepted graduate courses in Data Science, Web Search Engines & Information Retrieval. Chris has materially contributed to understanding of the Deep Web and Dark Web through the DARPA MEMEX project. Chris’ work helped uncover the Panama Papers scandal which won the Pulitzer Prize in Journalism in 2017.

### Artificial Intelligence

- Machine learning algorithms and neural networks
- Natural language processing and computer vision
- Robotics and autonomous systems
- AI ethics and responsible AI development
- AI driven business strategy and transformation

### Machine Learning

- Supervised and unsupervised learning
- Deep learning and reinforcement learning
- Feature engineering and model optimization
- Ensemble methods and hyperparameter tuning
- Machine learning frameworks like TensorFlow and PyTorch

### Data Science

- Data analytics and visualization
- Big data technologies and data engineering
- Statistical analysis and hypothesis testing
- Data preprocessing and cleaning
- Data-driven decision-making and insights

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