**Christopher Clarke, Ph.D.**

Summary

Machine Learning consultant with decades of expertise in advanced R&D innovation, machine learning, project management, personnel/product development, and intellectual property strategy, East Village ML boasts the sophisticated, rare skills needed to overcome barriers to success. By blending great planning, hard work, and the art form of complex problem solving, East Village ML provides near term accelerated results—consistent with your long-term vision.

Data science leader offering thought and team leadership in artificial intelligence and machine learning. Theoretical physics Ph.D. with deep experience in Data Science and pure/applied research in machine learning/AI in distributed environments. Strong analytic skills and expertise in leadership, vision, and execution.

Experience setting and realizing strategic data vision, applying business acumen, garnering stakeholder support, and understanding, and developing/ leading teams in R&D culminating in disruptive novel products and features. Track record of building and up-skilling diverse teams to achieve short and long-term business goals. Strong IP experience including strategy, capture, maintenance—with multiple patents.

Professional Experience

**Principal Consultant—**

 **East Village ML**, Greenwood Village, CO. February2021 –Present

* Specializing in helping startups find or realize their vision in AI, ML and Data Science
* Prioritizing pragmatic, feasibility-first approach of ML Prototypes or PoCs with your data
* Developing and managing client IP Generation and Strategy
* Serving as Interim Chief Data Scientist, Chief Data Officer, Chief Research Officer, or Chief Analytics Officer.
* Data Science Team Building and/or Up-skilling or Mentoring for existing teams
* Strategic/Tactical Advising and Consulting

**Chief Data Scientist—**

 **Spyglaz,** San Mateo, CA. September 2023 –Present

Direction of Spyglaz's data team, strategy and vision to drive innovation and excellence.
\* Leading the evolution of Spyglaz's sales and customer growth platform, leveraging generative AI, advanced AI and data solutions, to offer clients cutting-edge capabilities.
\* Strategically expanding Spyglaz's suite of products and capabilities—delivering exceptional client value.

## Head of Artificial Intelligence—

 **Cloopt**, Greenwood Village (DTC) CO.July 2020 –January 2021

* Heads all discovery and application of novel AI methods to optimize social and emotional learning (SEL) and to close the engagement loop between parent, child and teachers.
* Strategic creation and management of new AI features, functionalities and associated intellectual property.
* Development of technical data science product road map, stakeholder management AI go to market posturing.

## Vice President of Data Science—

 **PointPredictive**, San Diego, CA.October 2020 –December 2020

* Responsible for leading the data science team through improving custom, in-house AI fraud predictions--serving the automotive, retail, and mortgage spaces.
* Charged with R&D culminating in innovative products and features involving cutting-edge ML/AI methods within scalable practices and architectures.
* Responsible for managing and aggressively expanding IP portfolio.

## Director of Artificial Intelligence—

 **ClickFox dba BryterCX**, Greenwood Village (DTC) CO.May 2018 –April 2020

* Provided coherent vision and direction to BryterCX Research/Data Science efforts—in alignment with the Product organization.
* Built and managed first-rate team of data scientists, machine learning engineers, and full-stack/backend software developers. Actively managed team career development activities to engage, energize, enhance culture and product quality.
* Produced AI/ML products in areas ranging from unsupervised noise reduction to trained NN approaches. Advanced features and products from concept to prototype through beta and production.
* Directed research activities and developed patented, novel machine learning approaches and applications in the areas of predictive modeling, natural language processing, clustering, committee machines, naive Bayes classifiers, time-series forecasting, random forest methods and multilayer perceptrons.
* Reinvigorated the company’s patent efforts—considerably expanding the IP portfolio into advanced analytic and machine learning methods. Provided guidance to outside council and wrote multiple patent families covering key and central intellectual property in the cutting-edge *Journey Science* IP space.

## Research Scientist—

 **ClickFox,** Denver, CO.May 2016 –May 2018

* Researched and developed cutting edge methods on distributed computing platforms such as Spark on Hadoop for both legacy and emerging apps.
* R&D efforts including advanced descriptive and predictive analytics including NLP, Predictive Modeling and Supervised and Unsupervised ML.
* Used both standard and custom data science approaches and tools to deliver and enhance value—from canned code to custom ensemble methods.

## Senior Data Scientist—

 **SunEdison,** Denver, CO.December 2011 –March 2016

* Developed and was responsible for real-time python/MySQL/SQL Server machine learning algorithms for reportable production data and analytics platform governing worldwide SunEdison solar fleet.
* Led cross-functional R&D efforts including patent-generating, multi-stage product development initiatives.
* Conducted assessment/optimization campaigns delivering significant improvements to previous methods in automated and stand-alone tools to enhance scalability, quantify uncertainty, and minimize error.
* Recognized for frequently supporting various internal efforts and customers in areas of advanced statistical topics and applications.

## Senior Research Physicist/Program Manager—

**Tau Technologies**, Albuquerque, NM. March 2008 –December 2011

* Managed efforts spanning data science, theoretical and numerical atmospheric optical propagation in deep turbulence and statistical physics.
* Developed and implemented optimal-basis statistical-forecasting models.
* Developed Air Force Research Lab tools for synthetic sensor scenes, aberrated by the turbulent atmosphere, image processing and managed Small Business Innovation Research grants and sections of prime contracts.
* Performed business capture on Phase I, II and III Small Business Innovation Research grants, Phase I & II Small Business Tech Transfer grants, as well as Prime Contracts.

## Founder/Chief Scientist—

##  Laser Research Corporation, Albuquerque, NM ▪ July 2006 – March 2008

* Founder of defense startup specializing in theoretical and applied laser physics—in pulsed and CW regimes—as well as thermal/stress, and fluid flow modeling & simulation. Generated models and performed numerical simulations to support DoD research institutions.

## Research Physicist—

**Science Applications International Corp.,** Albuquerque, NM ▪ April 2004 – June 2006

* R&D as well as publishing both software codes and reports to support DoD objectives in the area of thermal transfer and fluid mechanics.
* Designed and conducted simulations in the areas of laser-matter-interactions, thermal-only, high-thermal-load/stress combination and assisted in free-electron laser simulations.
* Successfully managed multiple projects/programs.

### Education

Ph.D., *cum laude,* Theoretical Physics, **New York University**, ▪ 2003

Thesis: *Time Dependent Generalization of Floquet Method Applied to Pulsed Interactions*

M.S. - Computational Physics, **New York University**, New York ▪ 2001

B.A. - Applied Physics, Engineering Emphasis, **UNC**, Greeley, CO. ▪ 1997

### Technical Skills

ML/AI application development in Python, (Scikit-learn, NumPy, SciPy, Pandas, Statsmodels, Matplotlib), Spark, Mathematica, C/Fortran, MATLAB, R. OS including Unix, Linux, MS Windows. Experience in \*SQL, Hadoop. 6$σ$ Green Belt Certified.

### Leadership Skills

Strategic planning, team and culture building, career development and mentoring, program/project planning, management and estimation.

### Papers & Conferences

“Photovoltaic Performance Characterization: Optimization by Regression Basis with Application to Health Management“, C.A. Clarke, A. Golnas. June 19, 2013. 39th IEEE PVSC. Tampa, FL.

“Karhunen-Loève Representation of Phase Perturbations “, T.T. Clark, C.A. Clarke, August 23, 2010, Tau Technologies Technical Memo.

“Karhunen-Loève Decomposition and its relation to the Singular-Value Decomposition “, C.A. Clarke, T.T. Clark, September 4, 2010, Tau Technologies Technical Memo.

“A Method for Generating Random Phase Screens with Non-Kolmogorov, Non-Gaussian Statistics”, T.T. Clark, C.A. Clarke, June 23, 2009, Tau Technologies.

“A Comparison of Three Calculations of Tilt-Removed Phase-Perturbation Structure Functions Calculations “, D.L. Sandoval, C.A. Clarke, T.T. Clark, April 15, 2009, Tau Technologies Technical Memo.

 “Using experimental data from a balloon experiment to assess optical performance,” T.T. Clark, C.A. Clarke, Proc. SPIE, Vol. 7463, pp. 74630A1-A10

“Phase perturbation structure functions for wide apertures”. T.T. Clark, C.A. Clarke. To be submitted to JOSA.

“Self-Referencing AO System: Theory and Modeling” T.T. Clark, D. Fried, C. A. Clarke.

“Spatial-Temporal Control Applied to Atmospheric Adaptive Optics Phase I” AFRL/RDSEW Technical Report, Submitted September 2010.

“Fast Synthetic Scene Generation: Research Program, Phase II” AFRL/RDSA Technical Report.

Invited Presenter: International Conference on Electron and Photon Impact Ionization, Metz, France. *Time Dependent Generalization of Floquet Method Applied to Pulsed Interactions.*

MDA Corporate Lethality Review Presentation, 7 December 2004.  *Debris Analysis of ABL Test Targets*. (& Technical Report).

### Patents

* SYSTEM AND METHOD TO DISCOVER AND QUANTIFY PRINCIPAL DRIVING FACTORS OR “DOMINANT PATHS” IN INTERCONNECTED JOURNEY DATA.

Filed Mar 9, 2018; US 62/640,728.

* SYSTEM AND METHOD TO DISCOVER AND QUANTIFY KEY DRIVING FACTORS IN DIGITAL CONTAINMENT DATA.

Filed Mar 9, 2018; US 62/640,728.

* METHODS AND SYSTEMS FOR SCHEDULE-BASED AND ALERT-BASED CLEANING OF PV SYSTEMS.

Filed Oct 8, 2014; US provisional: 30175-204 (130160).

* METHODS AND SYSTEMS FOR CALIBRATING IRRADIANCE SENSORS.

Filed Oct 6, 2014; US 14/297,348.

* SYSTEMS AND METHOD TO QUANTIFY PERSONAL IDENTITY CONFIDENCE SCORES AND AUTHENTICATION METRICS IN SMARTPHONE AND IOT DEVICE DATA.

Filed Mar 18, 2022; US 63/321,271.