Gmail

Applied Category Theory <act2019school@gmail.com>

Application for Applied Category Theory 2019

1 message

Steele Price <steeleprice@usa.net> Tue, Jan 29, 2019 at 2:52 PM
To: act2019school@gmail.com

Application for Applied Category Theory 2019:

Attached is my current CV, an online version is available for public cross reference: https://www.linkedin.com/in/steeleprice/
as is my MVP Profile:
https://mvp.microsoft.com/en-us/PublicProfile/32249?fullName=Steele%20Price

I commit to attending the two-week visit to Oxford from July 15 – 26, 2019 upon acceptance.

I requested the addition of people actively working to apply Category Theory to real business problems as it would dramatically benefit the ACT2019 Course. Jules was kind enough to discuss the situation and then to tell me you have opened the door to (highly qualified) non-academics. I believe this will provide ACT additional real-world perspective.

I have completed several courses on Category Theory, including Bartosz Milewski's "Category Theory for the working Programmer", and ALL of his Youtube videos. I have complete and comprehensive understanding of Types (as in Pierce and Martin-Lof), I understand Heyting Algebra's and use them to tie Syntax and Semantics together. I work with mathematics and lambda calculus on a daily basis, not just because I like it, but rather, because it is the only way to define what we are trying to accomplish.

I have read everything I can obtain from David Spivak, Brendan Fong, Dan Marsden and others performing relative current research.

My position here is one of research, design and the setting of standards for the Judiciary.
I am not an academic, but do fulfill my role as one, and am expected to perform at the same level by applying my 30+ years of experience creating information systems. I am also expected to translate that material so everyone else in the organization (the entire State Judiciary) can understand it and apply the standards. I am a published author and a 10 Year veteran awardee of the "Microsoft MVP Award."

I have been at the Arizona Supreme Court for 5 years and from the onset have been architecting the change necessary to lift a 20 year old technology stack into the modern era. Of course, there were no adequate designs or reasons behind why things are organized the way they are, they are just that way. Mountains of technical documentation all refer to the "technology" and not the logic and understanding of the processes underneath. Part of my analysis was to eliminate ALL technology and discover the actual "System of Systems" in which everything is described and related. This lead me to Category Theory.

I have spent the better part of three years connecting the dots of Category Theory (far outside of simple functional programming), Theories of Description, Proof Theory and Type Theory and how to present those in a connected way that a "siloed" organization can use to relate the various divisions.

I am actively, as in working with several teams daily to teach Category Theory Basics, how it applies to creating software, the logical descriptions of workflows and propositions as types. We are developing processes to apply OLOGS to our requirements gathering, though we have added some slightly different ideas to apply it to "business information" rather than specifically science. Many subject matter experts who are critical to us for defining Categories and Functors have little to no mathematics background. We shelter them from confusion by abstracting it with a VisioSpatial Language (ologs and commute diagrams) connected directly to the Domain Specific Languages we create. We also are using string diagrams to assist with models and the same idea to transform difficult language for business to a visually compelling tool for Subject Matter Experts. I am

applying ideas from Peter Gärdenfors in The Geometry of Meaning to the way in which we create the languages inside Business Domains and translate isomorphically between them.

The ACT2019 could tremendously help me with a deeper understanding of Category Theory and how it is applied by others though face-to-face communication.

I am interested in the Projects in the following order:

1. Mehrnoosh Sadrzadeh: Formal and experimental methods to reason about dialogue and discourse using categorical models of vector spaces
    a. I am currently working in this area, primarily interpreting our event-centric style to Gärdenfors Conceptual Spaces with vectors and convex regions representing dimensional properties.
2. David Spivak: Toward a mathematical foundation for autopoiesis.
    a. The design pattern I use for what most people call “services” are dramatically different and modeled around Life, not paper.
3. Bartosz Milewski: Traversal optics and profunctors
    a. Lenses and prisms help us to define projections (into external databases and other systems) from raw system event data.
4. Tobias Fritz: Partial evaluations, the bar construction, and second-order stochastic dominance
    a. My persisted Event model could benefit greatly from partial evaluations.
5. Pieter Hofstra: Complexity classes, computation, and Turing categories
6. Miriam Backens: Simplifying quantum circuits using the ZX-calculus

All the recommendations and establishments as standards I do here are to be applied STATEWIDE in approximately 200 courts. This is not just limited to the State Judiciary, but also to the way we communicate and share information with other State Agencies, the Federal Government and the General Public. I collaborate extensively with the National Center for State Courts and hope to publish Category Theoretic recommendations at that level.

I look most forward to speaking and collaborating with other Category Theorists and Information Scientists whom I do not have a chance to collaborate with regularly.

Sincerely,

Steele Price
Chief Architect
Arizona Supreme Court

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H. STEELE PRICE, IV

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CTO ♦ Chief Architect

Expert architecture and software development strategist is leveraging 30 years of experience aligning business and IT. Particularly strong in UX, Mobility, ROA, SOA, P2P, Blockchain, SDLC and ALM processes. Architect and leader with a proven track record improving cross-platform integration. Expert applied knowledge of HTTP using the Internet as a platform for application software. Effective communicator and speaker — continuously awarded as Microsoft MVP 2005-2014 (10 awards).

EXPERTISE

Software Development: Microsoft Visual Studio.NET with VB.NET, C#, and SQL Server, ASP.NET, WCF, WPF, Silverlight, Ajax, JavaScript and XML/JSON; SOA, Line of Business UX, IoC/DI, Design Patterns, MVVM, MVP, MVC
Languages and Tools: C#, F#, VB.NET, Haskell, Go, HTML, CSS, JavaScript, SOA, Blockchain, Event Store, Akka, ASP.NET, MVC, API, LINQ, WPF, XML, T-SQL, NoSQL, Java, PHP, Apache, SSRS, TFS, Git, Tablet, Touch, Hyper-V/VMWare, Docker
Operating System: Windows, Linux, iOS, Android, AIX, z/OS and UNIX
Hardware: 8 - 64bit architectures, engineering design, development, manufacturing, POS Equipment Design.

Team Leadership / Motivation	**Strategic Planning**	**Software Development Lifecycle (SDLC)**
Workforce Planning / Restructuring	**Regulatory Compliance**	**E-Commerce/ SEO / Social Media**
Strategy	**Process Improvement**	**Mobile IT Strategy**
Change Management	**QA/QC & Testing**	**Data Warehousing**
Research	**Blockchain**	**Service / Resource Oriented Architecture**

CAREER PROGRESSION

Digital Dreamshop, LLC Phoenix, AZ **1993 – Present**
Software development and consulting company specializing in Document Management and Financial applications using VB.Net, C#, Code Generation, ASP.Net, Silverlight, WPF, SQL Server, and Digital Imaging.
Owner and CTO
Lead business vision and technology strategy to drive company. Created and sold unique high capacity systems, using current and future (beta) technologies, including WPF, Silverlight and ASP.NET using LINQ, MEF, Reactive Framework.

- Architected new HIPAA compliant, internet delivery software (Medical ROI and Billing) - $4M annual revenue.
- Established Contract Agreements with credit card processing vendors for E-Commerce protocols.
- Invented new techniques for using Code Generation to produce UIs with HTML, WPF, SOA, and DI.
    - Code Generation creates UIs, data layer and SOA saving hundreds of hours of development time.

Arizona Supreme Court, Phoenix, AZ **2014 – Present**
Judicial Branch Government Agency with 2,500 employees and an IT department of over 300 people.
Chief Architect – IT Division
Design and Architect an API based Service Strategy for Inter-System and Inter-Agency communication. Developed and Implemented new SDLC and ALM Processes throughout the AOC. Architected and designed the Administrative Case Event System (ACES). A system in which Court, Case, Participants and associated Events flow through the judicial department of the State of Arizona, communicates Case information externally to government agencies, and the public. Designed and Developed DocLink, a secure document retrieval system for linking legal documents. Architected the Electronic Court Filing API for filing Court Documents using the Oasis ECF 4.01 Standard and NIEM jxdm. Architected the AOC Identity Platform. OAuth/OpenID based security system for SSO and Claims Based Security.

US Airways, Tempe, AZ **2010 – March 2012**
Fortune 500 company and top-five US-based airline with 32,000 employees and an IT department of over 700 people.
Executive Principal Enterprise Architect (Director)
Worked with Upper Management to align Business Strategy with IT Strategy. Primary focus was Application Lifecycle Management, Service Oriented Architecture, Identity Management, and Development Processes. Worked across

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multiple teams to improve development team interactions and coordination with infrastructure. Lead Architecture guidance and chaired the Architecture Review Board. Advised Upper Management on strategies for Mobile Systems.

- Assessed SOA: analyzed maturity model, developed strategies and roadmap to improve use of SOA.
- Assessed ALM: produced new strategy based on Microsoft TFS 2010. Revised Agile Process, Source Repository and Issue Tracking. Implemented rollout of agile processes and trained over 100 users.
- Strategy and implementation plan for an enterprise grade Identity Management System.
- Reformed the Architecture Review Board reviewing projects over 500 man-hours or $50,000.
- Contributed to Open Travel Association's (OTA) Air Merchandising Schema (2011B).

GlobeNet Technologies, Inc., Scottsdale, AZ **2005 – 2007**

Enterprise incentive compensation software targeting large insurance carriers.

Vice President of Engineering and Development

Revolutionized development process, restructured development teams, versioning, SDLC, Build and Governance.

- Managed 30 developers in US, Mexico, Russia and India.
- Transitioned team to Agile, on-time and under budget delivery of new releases of the software.
- Improved reliability for client — reduced deployment time by 100%.
- Participated in Microsoft's Insurance Value Chain to create an Insurance Industry SOAP Messaging schema.

Digistor Inc., Phoenix, AZ **2000 – 2005**

Document imaging services: Release of Information software for hospitals, insurance, shipping and government.

Chief Technology Officer

PRIOR RELEVANT EXPERIENCE

Chief Technology Officer, Winksystem.com, Scottsdale, AZ
Chief Software Engineer, Innovision Imaging Inc., Phoenix, AZ
Senior Programmer / Analyst, TechSource Consulting, Inc., Phoenix, AZ
Vice President, Systems Sterling Technology International Ltd, Nassau, Bahamas
President and CEO, Sterling Cybernetic Systems, Los Angeles, CA
Executive Vice President, Niche Incorporated, Dayton, OH
Vice President, Triax Computer Solutions, Inc., Cincinnati, OH
Draftsman to General Manager, Flexiblast Company, Wilmington, OH

EDUCATION AND TRAINING

Computer Systems Engineering, Arizona State University, Tempe, AZ, 2004-2006
Computer Systems Engineering, Glendale Community College, Glendale, AZ, 2004-2006
Business, Xavier University, Cincinnati, OH, 1984-1986

Microsoft Certified Professional in Windows, Visual Basic and SQL Server
Ongoing Industry Conference Training including: Microsoft MVP Global Summit, ALM Summit, and Microsoft TechED.

PROFESSIONAL ORGANIZATIONS AND AFFILIATIONS

Microsoft MVP – .Net Languages - https://mvp.microsoft.com/en-us/PublicProfile/32249
Founding Contributor AZGiveCamp (semi-annual developer event giving development time to charities)
Member, Microsoft Developer Network and Microsoft Registered Partner.

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Published in Visual Studio Magazine (4/1/2009) for an article on XML Literals and Code Generation available online at: http://visualstudiomagazine.com/articles/2009/04/01/xml-literals-wcf-and-linq.aspx
Speaker and Presenter (1998 to present) at Developer Conferences and User Groups - Topics:

- Building Transactional Applications with .NET Core
- Agile Specifications: Bridging the gap between development and business
- Design Patterns for Persistence Ignorance
- Designing Great APIs
- Implementing Design Patterns, What we forgot OOP and OODD was supposed to be
- Published in Japanese .Net Magazine (2000) for an article on US developer perspectives