An explanation of any relevant background you have in category theory or any of the specific projects areas.

I have an MS in applied math, 25+ years experience in software development for CAD/CAM applications and a lifelong interest in self-organizing systems. I have no knowledge of category theory and hadn't previously heard the term "behavioral mereology" - however I believe I have adequate facility with mathematics to follow along enough to contribute.

The date you completed or expect to complete your Ph.D and a one-sentence summary of its subject matter.

n/a

Order of project preference

1. Title: Toward a mathematical foundation for autopoiesis
2. Title: Complexity classes, computation, and Turing categories
3. Title: Simplifying quantum circuits using the ZX-calculus

To what extent can you commit to coming to Oxford

I can commit to transporting myself to Oxford and the cost of attendance. I do need to ask to be allowed to purchase extra time off from my employer, so I cannot fully commit until they agree. CNC Software is a family owned company that takes pride in the life/work balance of their employees so I have some reason to believe they might be accomodating.

A brief statement (~300 words) on why you are interested in the ACT2019

To be frank, as a professional software engineer rather than a student, I understand that I am not the target participant for this program. I have a passion to understand more about information theory & the structure of self organizing systems..

Perhaps my experience with the trials and tribulations of adapting a software application to an ever-evolving market over the course of 25+ years might provide an illustrative example - especially given that software is an area where there has been much data gathered about the success of various management systems (Waterfall. SCRUM / etc).

I'll admit that Brendan Fong & David Spivak's Graphical regular logic is a bit intimidating but working through problems in the the early chapters of David Spivak's "Category theory for the science" textbook provided me with a bit more confidence. I have so enjoyed the online courses I have completed in the past and would appreciate the opportunity to participate in ACT2019.

Shannon Synan

shannon.synan@gmail.com, (413)323-4578 (H), (413)459-7223 (C) , 8 Howe St., Belchertown, MA 01007

Experience:

- Software Engineer, CNC Software, 2018-present
- Software Engineer/Consultant, 1992-2018 Implement functionality for ArtiosCAD including drafting and diemaking components
- Poseidon Incorporated, Concord, NH, 1998-2002
  Primary software designer and developer for multimedia authoring product, Shelldrake. Co-inventor for US Patent US6100881: Apparatus and method for creating interactive multimedia presentation using a shoot lost to keep track of audio objects of a character.

Skills:

- C/C++
- Octave
- MFC/Win32, Visual Studio
- SCRUM
- CAD Applications
- GUI workflows
- 3D Concepts

Education:

- MS in Applied Mathematics, 1990-1992, University of Massachusetts, Amherst
- BA, Hampshire College, 1985-1989

Coursework on Coursera:

- Andrew Ng's Machine Learning
- University of Washington's Computational Neuroscience
- University of Cal/Irvine's Emergent Phenomena in Science and Everyday Life
- Herbert Lee's Bayesian Statistics
- Valerio Scarani's Unpredictable Randomness, Chance and Free Will
- U of Edinburgh's Intellectual Humility: Practice

Volunteer Work:

- Mathcounts, 2009-2012
  Coached Belchertown students for Mathcounts competition & ReelMath Challenge
- Town of Belchertown Recreation Commission Appointed, 2011-2013
- Parent Member of Belchertown School Council, 2006-2011
- Belchertown Stingrays Swim Team, 2009-2015
  Responsible for meet planning, scoring and results distribution
- Belchertown Community plan, 2001-2002