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ERSP Literature Search

2-3 Primary Publication Venues (Conferences or Journals)

[1] Probabilistic Programming Journal 1: Modeling event change

https://towardsdatascience.com/probabilistic-programming-journal-1-modeling-event-change-9e9a91a5283a

This is a good journal because it provides quantitative examples with graphs, formulas, and charts.

[2] Two-Stage Inexact-Probabilistic Programming Model for Water Quality Management

https://www.liebertpub.com/doi/full/10.1089/ees.2011.0317?casa_token=bJvFBBInqy8AAAAA%3As2i8OO932Q11l0awzRxUG_yWiqGTXawC0pIo-4PVnX-2MRUKeFH9YeMRKvUgNnhzLUpSmZZtR6cHcnc

This is a good journal source because it provides a different perspective on probabilistic programming models through a lens of water quality management.

[3] Universal Probabilistic Programming Offers a Powerful Approach to Statistical Phylogenetics

https://www.nature.com/articles/s42003-021-01753-7

Again, this is a good journal source because not only does it provide a new take on statistical probabilistic programming through phylogenetics, but the models and abstractions make it easier to understand the author's approach. This will be useful for when we formulate our own.

Clustered List of Sources Related to the Primary Publication Venues (20+): Derived from Group 7's Shared Refworks Folder

[1] "Probabilistic Programming in Python Using Pymc3" by John Salvatier.

This article is related to our topic because it discusses the probabilistic programming language, Pymc3. It also contributed to our understanding of how probabilistic programming can be applied to real life problems.

[2] "Probabilistic Programming: The What, Why and How" by ACM SIGPLAN.

Although this is a YouTube video, we wanted to include it in our sources because it contributed to our general knowledge of probabilistic programming and the math / logic behind it.

[3] "Probabilistic Programming with Discrete Distributions and Precedence Constrained Knapsack Polyhedra" by Andrzej Ruszczynski.

This article is related to our research topic because it considers stochastic programming problems with probabilistic constraints involving variables with discrete distributions. Although this piece is very technically specific, making it a challenging read, the numerical examples that the results are given in made it easier to understand.

[4] Intelligent Informatics Bulletin.

This bulletin is related to probabilistic programming and artificial intelligence.

[5] "Statistical Applications of Artificial Intelligence" by William A. Gale.

This article is relevant because it relates statistics to artificial intelligence, which comes back to the concept of probabilistic programming. It is also mentioned that AI has opened up new areas of research for statisticians.

[6] "A Probabilistic Proof of Some Integral Formulas Involving the Meijer G-Function" by Robert E. Gaunt.

This article is related to our research topic because it provides probabilistic proof for calculus concepts that our group is familiar with.

[7] "A New Approach to Probabilistic Programming Inference" by Frank Wood, Jan Williem, Vikash Mansinghka, and Meent van de.

This article is related to our research topic because it demonstrates a new approach to inference in probabilistic programming languages based on the Markov chain Monte Carlo.

[8] "Particle Filter with Rejection Control and Unbiased Estimator of the Marginal Likelihood" by Jan Kudlicka, Lawrence M. Murray, Thomas B. Schon, and Fredrik Lindsten.

This article is relevant to our research topic because it demonstrates a specific example of utilizing resampling in Monte Carlo methods, which are also known as particle filters.

[9] "Compiling Stan to Generative Probabilistic Languages and Extension to Deep Probabilistic Programming" by Guillaume Baudart, Javier Burroni, Martin Hirzel, Louis and Shinnar Avraham.

This article relates to probabilistic programming because it tries to combine the advantages of deep learning with those of PPLs. If this succeeds, it will be a leap forward in machine learning. Even though we were focusing on artificial intelligence, it was interesting to learn about other divisions of computer science that can benefit from probabilistic programming.

[10] "Probabilistic Programming" Journal Article by Andrew Gordan and Henzinger Thomas.

This journal article relates to our research topic because it breaks down what a probabilistic program is and what functionality they usually have.

[11] "Paradoxes of Probabilistic Programming" by Jules Jacobs.

This article helped our group understand conditional probability distributions that represent statistical models as programs.

[12] "Testing Probabilistic Programming Systems" by Saikat Dutta, Owolabi Legunsen, Zixin Huang, and Sasa Misailovic.

This article relates to our research topic because it further explains probabilistic programming systems and how they help developers create statistical models. These authors specifically focus on bugs and their influence on these models.

[13] "Stan: A Probabilistic Programming Language for Bayesian Inference and Optimization" by Andrew Gelman, Daniel Lee,and Jiqiang Guo.

This source discusses a probabilistic programming language written in C++, which is useful to us as part of our project will be attempting to use probabilistic programming in C++.

[14] Genetic Programming In C++ by Adam Frasier.

Although genetic programming is not quite probabilistic programming, it is closely related and therefore may be useful in our research attempt.

[15] Automated learning with a probabilistic programming language: Birch by Lawrence Murray and Thomas Schön.

Birch is a probabilistic programming language based on C++ and it may therefore be useful for our research.

[16] The BLOG Language Reference by Lei Li and Stuart Russel.

This is a blog user's guide, and it seems relatively simple, which could be useful considering we plan to program in BLOG.

[17] Practical Probabilistic Programming by Avi Pfeffer.

This is a book written in 2016 and helps explain the general concepts of probabilistic programming, especially in a more simple way than most of the research papers. I also found it on the publisher's website for free later.

[18] Quantifying Bias and Uncertainty in Historical Data. Collections with Probabilistic Programming by Leo Lahtia, Eetu Mäkeläb and Mikko Tolonen.

This paper describes one interesting problem that can be helped by probabilistic programming, which is useful to discuss why our research is important.

[19] Probabilistic Programming: The What, Why, and How by Maria I. Gorinova.

A recorded talk on the basics of probabilistic programming and applications

[20] Seeing Theory: Bayesian Inference by Daniel Kunin, Jingru Guo, Tyler Dae Devlin, and Daniel Xiang.

I have included this online book chapter, despite it not being a journal published resource, since much of our research focuses on learning and understanding these topics.

Explain terms in detail, gather data and charts as we go.