A Multivocal Literature Review: MLOps Tools and Features: Online Appendix

1 List of Selected Studies

1.1 Google Scholar

- 1. Atwal, Harvinder. Practical DataOps: Delivering Agile Data Science at Scale. Apress, 2019.
- 2. Popp, Matthias. Comprehensive support of the lifecycle of machine learning models in model management systems. MS thesis. 2019.
- Zahid, Hira, Tariq Mahmood, and Nassar Ikram. "Enhancing Dependability in Big Data Analytics Enterprise Pipelines." International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage. Springer, Cham, 2018.
- Benni, Benjamin, et al. "When DevOps meets Meta-Learning: A portfolio to rule them all." 2019 ACM/IEEE 22nd International Conference on Model Driven Engineering Languages and Systems Companion (MODELS-C). IEEE, 2019.
- 5. Khalajzadeh, Hourieh, et al. "A survey of current end-user data analytics tool support." 2018 IEEE International Congress on Big Data (BigData Congress). IEEE, 2018.
- 6. Khalajzadeh, Hourieh, et al. "An end-to-end model-based approach to support big data analytics development." Journal of Computer Languages 58, 2020.

1.2 Google

- 7. Machine learning operations (MLOps). Microsoft. Developer website. 2020.
 - https://azure.microsoft.com/en-us/services/machine-learning/mlops/.
- MLOps: Continuous delivery and automation pipelines in machine learning. Google Cloud. Developer website. 2020. https://cloud.google.com/solutions/machine-learning/mlops-continuous-delivery-and-automation-pipelines-in-machine-learning.

- Christiano Breuel. ML Ops: Machine Learning as an Engineering Discipline. Towards data science. Blog post. 2020. https://towardsdatascience.com/ml-ops-machine-learning-as-an-engineeringdiscipline-b86ca4874a3f.
- Daniel Kobran, David Banys. Machine Learning Operations (MLOps). Gradient. Developer website. 2020. https://docs.paperspace.com/machine-learning/wiki/machine-learning-operations-mlops.
- Valohai Website. Valohai. Developer website. 2020. https://valohai.com/.
- 12. How to efficiently grow your all-around ML capability, from RD to production!. datatonic. Blog post. 2020. https://datatonic.com/insights/mlops-grow-your-all-around-ml-capability.
- 13. Danilo Sato, Arif Wider, Christoph Windheuser. Continuous Delivery for Machine Learning. Martin Fowler. Blog post. 2019. https://martinfowler.com/articles/cd4ml.html.
- Vishal Chawla. WHY IS MLOPS GAINING PROMINENCE?. Analytics in diamag. Blog post. 2020. https://analyticsindiamag.com/why-is-mlops-gaining-prominence/.
- Alex Handy. Dotscience on OpenShift: Enabling DevOps for MLOps. RedHat OpenShift. Blog post. 2020. https://www.openshift.com/blog/dotscience-on-openshift.
- 16. Algorithmia Website. Algorithmia. Developer website. 2020. https://algorithmia.com/.
- 17. Ryan Dawson. What would machine learning look like if you mixed in DevOps?. The register. Blog post. 2020. https://www.theregister.co.uk/2020/03/07/devops_machine_learning_mlops/.
- Aaron Schneider. MLOps for production-level machine learning. BrightTALK. Webinar. 2020. https://www.brighttalk.com/webcast/17914/383250/mlops-for-production-level-machine-learning.
- Meciej Mazur. More Effective Machine LEarning Production with MLOps. Medium. Blog post. 2020. https://medium.com/pgs-software/more-effective-machine-learning-production-with-mlops-78c4036beee4.
- 20. George Lawton. MLOps tools hope to boost enterprise model implementation. Search Entrpreise AI. Blog post. 2020. https://searchenterpriseai.techtarget.com/feature/MLOps-tools-hope-to-boost-enterprise-model-implementation.

- 21. Mark Williams. Dotscience Gains Momentum in the MLOps Ecosystem and Accelerates Deployment of Machine Learning Models into Production with New Technology Partnerships and Product Innovations. Business wire. Blog post. 2019. https://www.businesswire.com/news/home/20191218005226/en/Dotscience-Gains-Momentum-MLOps-Ecosystem-Accelerates-Deployment.
- 22. Dylan Tong, Courtney McKay, Krishnama Raju. How Slalom and Word-Stream Used MLOps to Unify Machine Learning and DevOps on AWS. AWS. Blog post. 2020. https://aws.amazon.com/blogs/apn/how-slalom-and-wordstream-used-mlops-to-unify-machine-learning-and-devops-on-aws/.
- Payam Mokhtarian. MLOps 101 Modern Operation of a Machine Learning Application. Linked in. Blog post. 2019. https://www.linkedin.com/pulse/mlops-101-modern-operation-machine-learning-payam-mokhtarian/.
- William McKnight. Delivering on the Vision of MLOps. GigaOm. White paper. 2020. https://gigaom.com/report/delivering-on-the-vision-of-mlops/.
- Jordan Edwards. Enterprise Readiness, MLOps and Lifecycle Management with Jordan Edwards (Transcript). twiml. Transcript. 2019. https://twimlai.com/twiml-talk-321-enterprise-readiness-mlops-and-lifecycle-management-with-jordan-edwards-transcript/.
- Kyle Gallatin. MLOps: The end of end-to-end. Mosaic Ventures. Blog post. 2020. https://www.mosaicventures.com/mosaicblog/2020/2/20/mlops-the-end-of-end-to-end.
- Katinka Gereb. Best Practices for MLOps and the Machine Learning Lifecycle. Contino. Blog post. 2020. https://www.contino.io/insights/mlops-and-the-machine-learning-lifecycle.
- 28. Emmanuel Raj. Robust and scalable Machine Learning lifecycle for a high performing AI team. Tietoevvery. Blog post. 2019. https://www.tietoevry.com/en/blog/2019/12/robust-and-scalable-ml-lifecycle-for-a-high-performing-ai-team/.
- Alex Beshears. Introducing MLOps And SDX for Models in Cloudera Machine Learning. Cloudera. Blog post. 2020. https://blog.cloudera.com/introducing-mlops-and-sdx-for-models-in-cloudera-machine-learning/.
- 30. Austan Kodra. AI and Machine Learning Landscape (Part 3): Model Deployment and Management. Heartbeat. Blog post. 2020. https://heartbeat.fritz.ai/ai-machine-learning-landscape-part-3-model-deployment-and-management-b47e52bbbffa.

- Chris Sterry. Dotscience announces MLOps integration with GitLab. Git-Lab. Blog post. 2019. https://about.gitlab.com/blog/2019/12/18/dotscience-mlops-integration/.
- 32. Fabia Buso, Jim Dowling. MLOps with a Feature Store. Logical Clocks. Blog post. 2020. https://www.logicalclocks.com/blog/mlops-with-a-feature-store.
- Abineet Bason. ML-Ops: Productionalizing Machine Learning on Scale. Latent view. Blog post. 2020. https://www.latentview.com/blog/ml-ops-productionalizing-machine-learning-on-scale/.
- 34. Spell Website. Spell. Developer website. 2020. https://spell.run/platform.
- 35. Herman Wu. ML-Ops how to bring your data science to production. Slideshare. Webinar. 2019. https://www.slideshare.net/zobeide/mlops-how-to-bring-your-data-science-to-production.
- Kevin Stupf. Why We Need DevOps for ML Data. Tecton. Blog post. 2020. https://tecton.ai/blog/devops-ml-data/.
- 37. Siganakis. MLOps: CI/CD for Machine Learning Pipelines Model Deployment with Kubeflow. Growing Data. Blog post. 2019. https://growingdata.com.au/mlops-ci-cd-for-machine-learning-pipelines-model-deployment-with-kubeflow/.
- 38. Data Science Platform Powering Machine Learning Pipelines. Aguazo. Developer website. 2020. https://www.iguazio.com/technology/.
- 39. Brenda Fox. Dotscience Looks To Simplify MLOps and Speed Delivery of AI Projects. Integration developer news. Blog post. 2020. https://www.idevnews.com/stories/7310/Dotscience-Looks-To-Simplify-MLOps-and-Speed-Delivery-of-AI-Projects.
- 40. Makarand P Batchu. Top 5 FAQs on Operationalizing ML Workflow using Azure Machine Learning. SNP. Blog post. 2020. https://www.snp.com/blog/top-5-faqs-operationalizing-ml-workflow-using-azure-machine-learning.
- 41. AI and Machine Learning Operationalization Software. G2. Developer website. 2020. https://www.g2.com/categories/ai-machine-learning-operationalization? order=popularproduct-list.

- 42. Chanwit Kaewkasi. MLOps on Kubernetes with Portable Profiles. Weave. Blog post. 2019. https://www.weave.works/blog/mlops-on-kubernetes-with-portable-profiles.
- 43. Mary Branscombe. What's ne in Azure AI services. Code Matters. Blog post. 2019. https://codematters.online/whats-new-in-azure-ai-services/.
- 44. Editorial Team. Dotscience Enables Simplest Method for Building, Deploying and Monitoring ML Models in Production on Kubernetes Clusters to Accelerate the Delivery of Business Value from AI. Inside big data. Blog post. 2019. https://insidebigdata.com/2019/11/03/dotscience-enables-simplest-method-for-building-deploying-and-monitoring-ml-models-in-production-on-kubernetes-clusters-to-accelerate-the-delivery-of-business-value-from-ai/.
- 45. Sam Charrington. THE DEFINITIVE GUIDE TO Machine Learning Platforms. Twiml. White paper. 2019. https://s3-us-west-2.amazonaws.com/com.cloudpulsestrat/public/TWIML $_ML_Platforms.pdf$.
- 46. Deploying A Scalable Deep Learning Solution in Production with Tensor-flow: A Reference Design with Mellanox and ParallelM. Mellanox Technologies. Blog post. 2018. https://community.mellanox.com/s/article/deploying-a-scalable-deep-learning-solution-in-production-with-tensorflow-a-reference-design-with-mellanox-and-parallelm.
- 47. Allegro Website. Allegro. Developer website. 2020. https://allegro.ai/.
- 48. Ben Alex Keen. Creating End-to-End MLOps pipelines using Azure ML and Azure Pipelines. Ben Alex Keen. Blog post. 2020. https://benalexkeen.com/creating-end-to-end-mlops-pipelines-using-azure-ml-and-azure-pipelines-part-1/.
- 49. Microsoft. MLOps examples. Microsoft. GitHub. 2020. https://github.com/microsoft/MLOps.
- zoekdestep. MLOps using Azur ML Services and Azure DevOps. Microsoft. Github. 2020. https://github.com/microsoft/MLOpsPython.
- 51. pplonski. awesome-production-machine-learning. EthicalML. Github. 2020. https://github.com/EthicalML/awesome-production-machine-learning.
- 52. visenger. A list of references for MLOps. visenger. Github. 2020. https://github.com/visenger/mlops-references.

- 53. parano. Model Serving Made Easy. BentoML. Github. 2020. https://github.com/bentoml/BentoML.
- 54. RafalSKolsinki seldondev. A framework to deploy, manage and scale your production machine learning to thousands of models . SeldonIO. Github. 2020.
 - https://github.com/SeldonIO/seldon-core.
- 55. alecionnides. An introduction to machine learning model deployment operations (MLOps) using Python, Docker, Kubernetes and Seldon-Core.. Alecloannides. Github. 2019. https://github.com/AlexIoannides/kubernetes-ml-ops.
- 56. Microsoft Developer. DevOps For ASP.NET Developers Pt.1 What is DevOps?. Microsoft Developer. Video. 2019. https://www.youtube.com/watch?v=RAlHg2adggQlist=PLs-on7 OmOBMbK71IzA4sccFg6yq4YiygEindex=68t=0s.
- 57. Stephan Pushkarev. Kubeflow MLFlow and Beyond augmenting ML delivery Stepan Pushkarev. Provectus. Video. 2019. https://www.youtube.com/watch?v=drX5bPIr3AI.
- 58. David Aronchick. Managing Machine Learning in Production with Kubeflow and DevOps David Aronchick, Microsoft. CNCF [Cloud Native Computing Foundation]. Video. 2019. https://www.youtube.com/watch?v=lu5zHvpQeSI.
- 59. Microsoft Developer. Managing your ML lifecycle with Azure Databricks and Azure ML BRK3010. Microsoft Developer. Video. 2019. https://www.youtube.com/watch?v=pe_OH07wAYc.
- 60. Google Cloud Platform. What is ML Ops? Best Practices for DevOps for ML (Cloud Next '18). Google Cloud Platform. Video. 2018. https://www.youtube.com/watch?v= $_inhXzY1HCw$.