



## 殷明周

理学博士 (Dr. sc. ETH Zürich)

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### 个人简介

殷明周自 2024 年 8 月起在德国莱布尼茨汉诺威大学自动控制研究所担任博士后研究员。他于 2024 年在苏黎世联邦理工学院 (ETH Zurich) 自动控制实验室获得理学博士学位，导师为 Roy S. Smith 教授。其博士论文研究方向为系统辨识与数据驱动控制中的正则化与非参数方法。他于 2018 年在荷兰代尔夫特理工大学航空航天工程学院获得控制与仿真硕士学位，并以 *cum laude* 荣誉毕业。其硕士论文与洛克希德·马丁公司合作，研究过驱动飞机的包线保护非线性控制。他于 2016 年在上海交通大学与香港大学联合培养项目中获得机械工程学士学位，并获一等荣誉学位。他曾于 2023 年获得 IEEE 控制系统学会瑞士分会青年作者最佳期刊论文奖，以及系统辨识与自适应控制技术委员会杰出学生论文奖。

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### 研究兴趣

其研究兴趣包括数据驱动建模、仿真与控制，基于高斯过程的控制，稀疏学习理论，基于子空间方法与正则化方法的系统辨识，模型预测控制，以及周期系统理论。

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### 工作经历

**2024.08 – 至今** 博士后研究员，自动控制研究所，莱布尼茨汉诺威大学，德国

**2019.02 – 2024.02** 助理研究员，自动控制实验室，苏黎世联邦理工学院，瑞士

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### 项目经历

**2024.08 – 2025.12** zukunft.niedersachsen 项目，下萨克森州科学与文化部，德国

**2020.08 – 2024.02** 瑞士国家科研重点计划 NCCR Automation，瑞士国家科学基金会，瑞士

**2019.02 – 2023.01** 能源应用中周期系统的建模、辨识与控制，瑞士国家科学基金会，瑞士

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## 教育经历

**2019.02 – 2024.02** 理学博士，自动控制实验室，苏黎世联邦理工学院，瑞士

导师：Roy S. Smith

论文：Regularized and nonparametric approaches in system identification and data-driven control

**2016.09 – 2018.07** 航空航天工程理学硕士 [*Cum Laude*]，代尔夫特理工大学，荷兰

导师：Coen de Visser, Qiping Chu

论文：Envelope estimation and protection of innovative control effectors (ICE) aircraft

**2012.09 – 2016.06** 机械工程工学学士 [一等荣誉]，上海交通大学与香港大学

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## 获奖情况

**2023** IEEE 控制系统学会瑞士分会青年作者最佳期刊论文奖

**2023** IEEE 控制系统学会系统辨识与自适应控制技术委员会杰出学生论文奖

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## 发表论文 (Google Scholar)

预印本

[P1] **Yin M.**, Müller M.A. (2025). Gaussian Process-Based Prediction and Control of Hammerstein-Wiener Systems. arXiv:2501.15849.

[P2] **Yin M.**, Iannelli A., Nazari S.A., Müller M.A. (2025). A Unified Bayesian Framework for Stochastic Data-Driven Smoothing, Prediction, and Control. arXiv:2512.01475.

期刊论文

[J1] **Yin M.**, Müller M.A. (2025). Low-Rank Matrix Regression via Least-Angle Regression. *IEEE Control Systems Letters*, 9, 637-642.

[J2] Chen R., Srivastava A., **Yin M.**, Smith R.S. (2024). Closed-Loop Identification of Stabilized Models Using Dual Input-Output Parameterization. *European Journal of Control*, 101089.

[J3] **Yin M.**, Cai H., Gattiglio A., Khayatian F., Smith R.S, Heer P. (2024). Data-driven Predictive Control for Demand Side Management: Theoretical and Experimental Results. *Applied Energy*, 353(A), 122101.

[J4] **Yin M.**, Smith R.S. (2023). Error Bounds for Kernel-Based Linear System Identification with Unknown Hyperparameters. *IEEE Control Systems Letters*, 7, 2491-2496.

- [J5] **Yin M.**, Iannelli A., Smith R.S. (2021). Maximum Likelihood Estimation in Data-Driven Modeling and Control. *IEEE Transactions on Automatic Control*, 68(1), 317-328.
- [J6] **Yin M.**, Iannelli A., Smith R.S. (2021). Subspace Identification of Linear Time-Periodic Systems with Periodic Inputs. *IEEE Control Systems Letters*, 5(1), 145-150.
- [J7] **Yin M.**, Chu Q. P., Zhang Y., Niestroy M. A., de Visser C. C. (2019). Probabilistic Flight Envelope Estimation with Application to Unstable Overactuated Aircraft. *Journal of Guidance, Control, and Dynamics*, 42(12), 2650-2663.

#### 会议论文

- [C1] Smith R.S, Abdalmoaty M., **Yin M.** (2024). Optimal Data-Driven Prediction and Predictive Control using Signal Matrix Models. *IEEE Conference on Decision and Control*.
- [C2] Smith R.S, Abdalmoaty M., **Yin M.** (2024). Data-Driven Formulation of the Kalman Filter and its Application to Predictive Control. *IEEE Conference on Decision and Control*.
- [C3] **Yin M.**, Iannelli A., Smith R.S. (2024). Stochastic Data-Driven Predictive Control: Regularization, Estimation, and Constraint Tightening. *IFAC Symposium on System Identification*.
- [C4] Abdalmoaty M., Miller J., **Yin M.**, Smith R.S. (2024). Frequency-Domain Identification of Discrete-Time Systems using Sum-of-Rational Optimization. *IFAC Symposium on System Identification*.
- [C5] Srivastava A., **Yin M.**, Iannelli A., Smith R.S. (2023). A Dual System-Level Parameterization for Identification from Closed-Loop Data. *IEEE Conference on Decision and Control*.
- [C6] **Yin M.**, Akan M.T., Iannelli A., Smith R.S. (2022). Infinite-Dimensional Sparse Learning in Linear System Identification. *IEEE Conference on Decision and Control*.
- [C7] Ozan D.E., **Yin M.**, Iannelli A., Smith R.S. (2022). Kernel-Based Identification of Local Limit Cycle Dynamics with Linear Periodically Parameter-Varying Models. *IEEE Conference on Decision and Control*.
- [C8] **Yin M.**, Iannelli A., Smith R.S. (2022). Data-Driven Prediction with Stochastic Data: Confidence Regions and Minimum Mean-Squared Error Estimates. *European Control Conference*.
- [C9] Iannelli A., **Yin M.**, Smith R.S. (2021). Design of Input for Data-Driven Simulation with Hankel and Page Matrices. *IEEE Conference on Decision and Control*.
- [C10] Ozan, D.E., Iannelli A., **Yin M.**, Smith R.S. (2021). Regularized Classification and Simulation of Bifurcation Regimes in Nonlinear Systems. *The 3rd IFAC Conference on Modelling, Identification and Control of Nonlinear Systems*.
- [C11] Iannelli A., **Yin M.**, Smith R.S. (2021). Experiment Design for Impulse Response Identification with Signal Matrix Models. *The 19th IFAC Symposium on System Identification*.

- [C12] **Yin M.**, Smith R.S. (2021). On Low-Rank Hankel Matrix Denoising. *The 19th IFAC Symposium on System Identification*.
- [C13] **Yin M.**, Iannelli A., Smith R.S. (2021). Maximum Likelihood Signal Matrix Model for Data-Driven Predictive Control. *Proceedings of the 3rd Conference on Learning for Dynamics and Control*, PMLR 144:1004-1014.
- [C14] **Yin M.**, Iannelli A., Khosravi M., Parsi A., Smith R.S. (2020). Linear Time-Periodic System Identification with Grouped Atomic Norm Regularization. *IFAC World Congress*.
- [C15] Khosravi M.\*, **Yin M.\***, Iannelli A., Parsi A., Smith R.S. (2020). Low-Complexity Identification by Sparse Hyperparameter Estimation. *IFAC World Congress*.
- [C16] Khosravi M., Iannelli A., **Yin M.**, Parsi A., Smith R.S. (2020). Regularized System Identification: A Hierarchical Bayesian Approach. *IFAC World Congress*.
- [C17] Parsi A., Iannelli A., **Yin M.**, Khosravi M., Smith R.S. (2020). Robust Adaptive Model Predictive Control with Worst-Case Cost. *IFAC World Congress*.
- [C18] **Yin M.**, Chen Y., Lee K. H., Fu D. K., Tse Z. T. H., Kwok K. W. (2018). Dynamic Modeling and Characterization of the Core-XY Cartesian Motion System. *IEEE International Conference on Real-time Computing and Robotics*.

#### 学位论文

- [T1] **Yin M.** (2024). Regularized and Nonparametric Approaches in System Identification and Data-Driven Control. ETH Zurich.
- [T2] **Yin M.** (2018). Envelope Estimation and Protection of Innovative Control Effectors (ICE) Aircraft: A Probabilistic Approach. Delft University of Technology.