

Stochastic Uncertainty Propagation in Power System Dynamics using Measre-valued Proximal Recursions

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Abstract—The abstract goes here.

Index Terms—Uncertainty propagation, power system dynamics, optimal transport, proximal operator.

I. INTRODUCTION

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II. CONCLUSION

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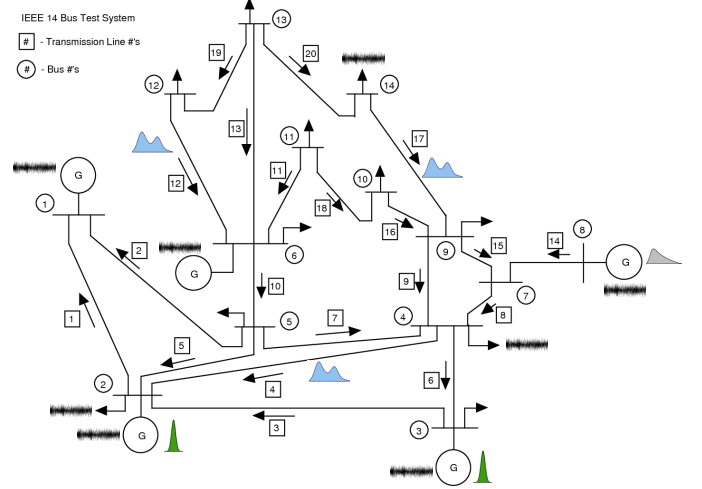


Fig. 1: A schematic of the IEEE 14 bus test system with stochastic uncertainties. The Uncertainty sources may include stochastic forcing and parametric uncertainties at some generators, random variabilities at some loads, and parametric uncertainties along some transmission lines. For depiction purposes, we indicated the parametric uncertainties as PDFs, and stochastic forcing as intermittent signals.

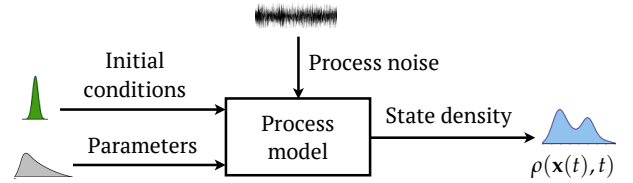


Fig. 2: Block diagram for joint state PDF propagation.

APPENDIX A

PROOF OF THE FIRST ZONKLAR EQUATION

Appendix one text goes here.

APPENDIX B

Appendix two text goes here.

ACKNOWLEDGMENT

REFERENCES

- [1] C. Villani, *Topics in optimal transportation*, No. 58, American Mathematical Society, 2003.

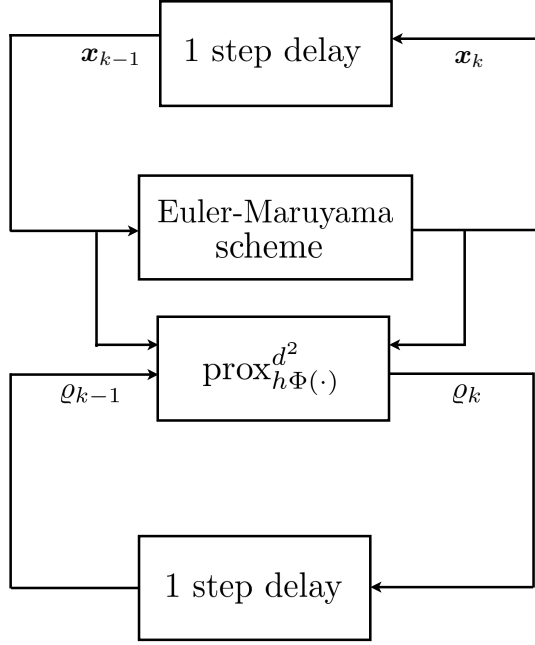


Fig. 3: Schematic of the proposed algorithmic setup for propagating the joint state PDF as probability weighted scattered point cloud $\{\mathbf{x}_k^i, \varrho_k^i\}_{i=1}^N$. The location of the points $\{\mathbf{x}_k^i\}_{i=1}^N$ can be updated by Euler-Maruyama scheme applied to (??); the corresponding probability weights $\{\varrho_k^i\}_{i=1}^N$ can be updated via discrete version of the proximal recursion (??).



Michael Shell Biography text here.



Abhishek Halder is an Assistant Professor in the Department of Applied Mathematics, and is an affiliated faculty in the Department of Electrical and Computer Engineering at University of California, Santa Cruz. Before that he held postdoctoral positions in the Department of Mechanical and Aerospace Engineering at University of California, Irvine, and in the Department of Electrical and Computer Engineering at Texas A&M University. He obtained his Bachelors and Masters from Indian Institute of Technology Kharagpur in 2008, and

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