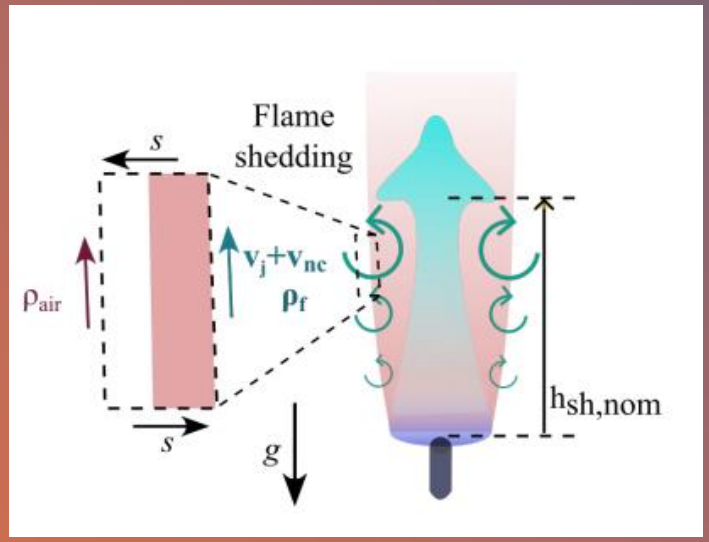
VORTEX SHEDDING CHARACTERISTICS OF PREMIXED FLAME

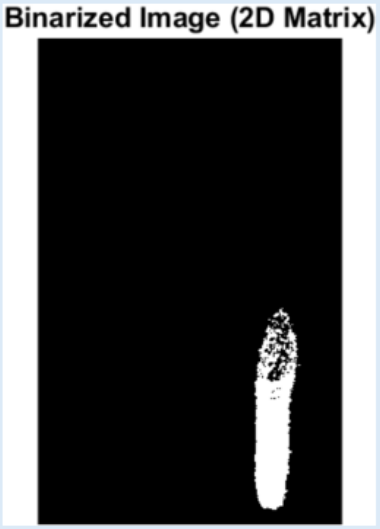


- Surya Neelakandan - 22938
- E Sam Elijah - 25335
- Anisha - 24805
- M Ashwin Ganesh -24882

Data Credits:
Akhil Aravind – Prof Basu Lab

IMAGE PROCESSING

928 * 576



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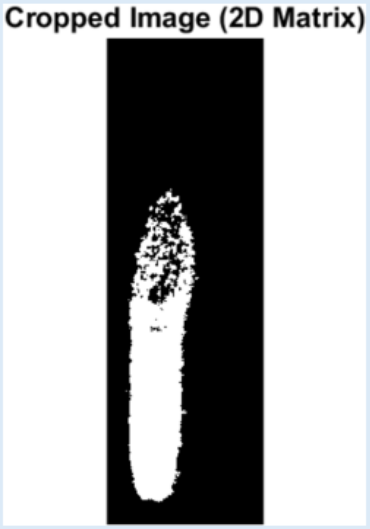
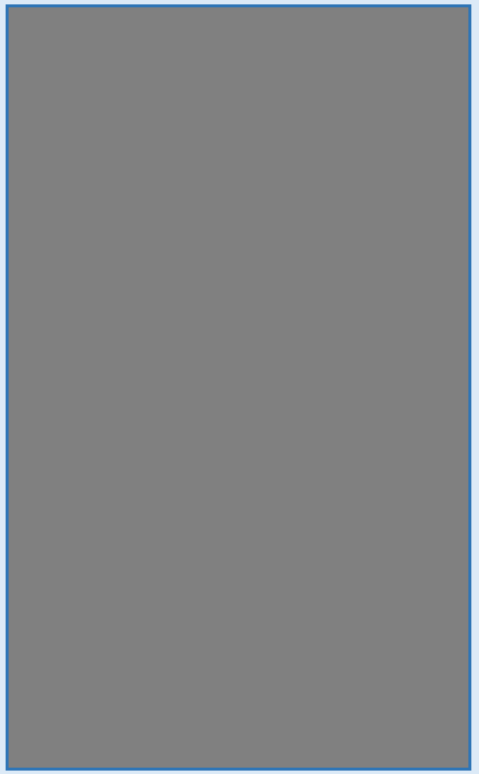


600*192

Flattened Image

115200*1

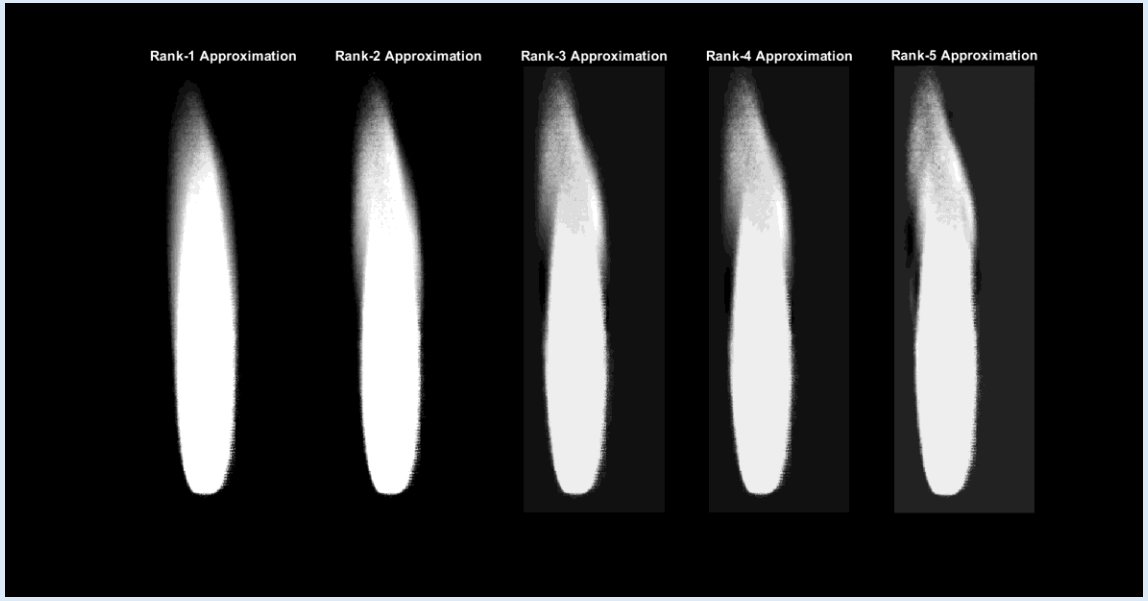
Combined Images Matrix

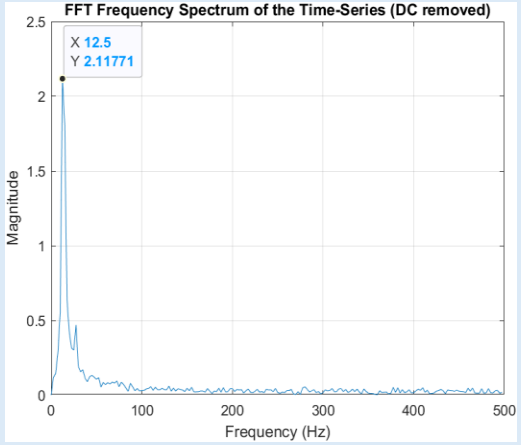


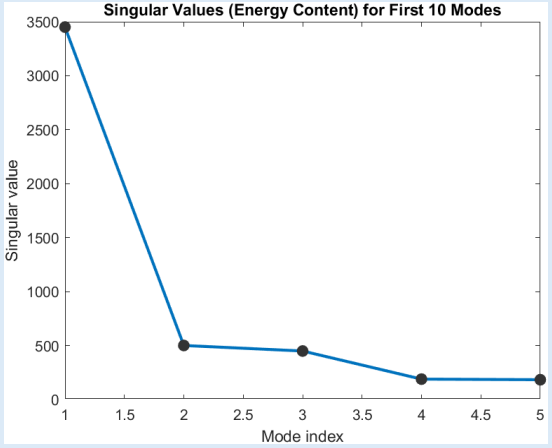
115200*800

PROPER ORTHOGONAL DECOMPOSITION (POD)

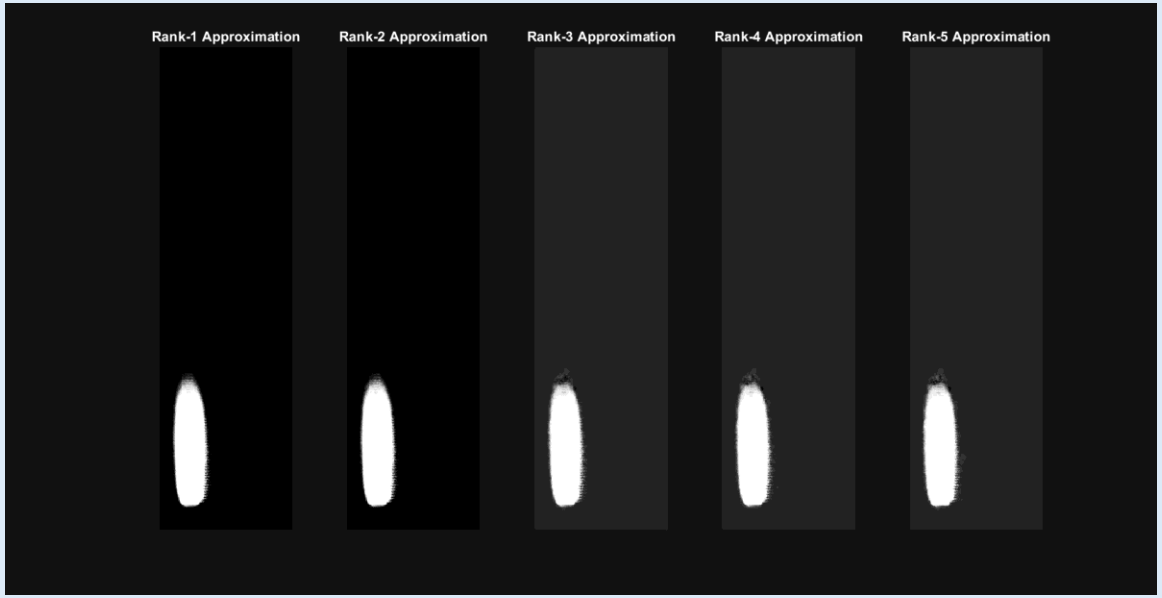
VORTEX SHEDDING / FLICKERING PRESENT

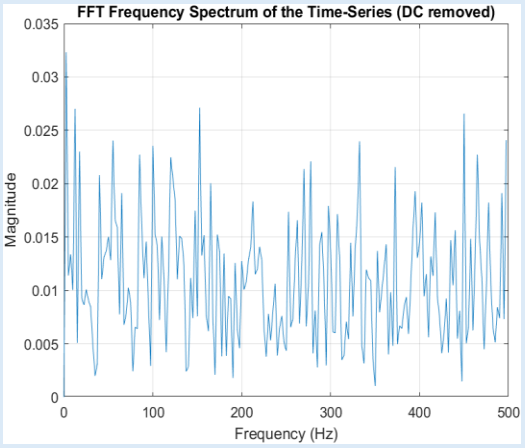


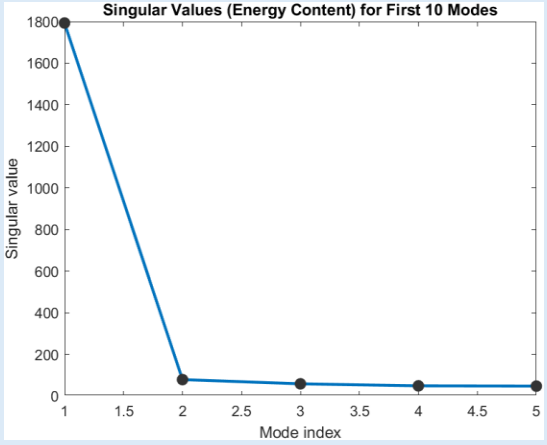




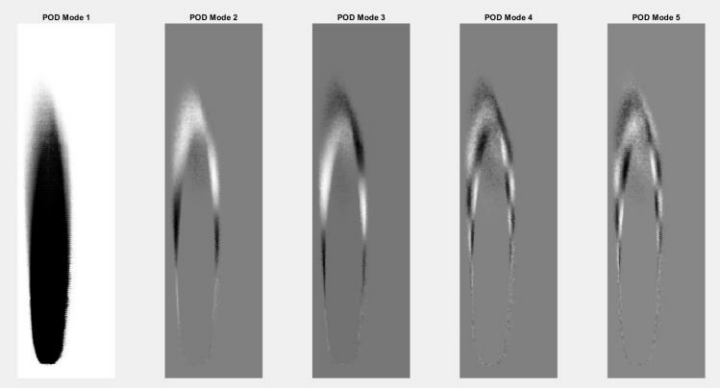
VORTEX SHEDDING/FLICKERING ABSENT

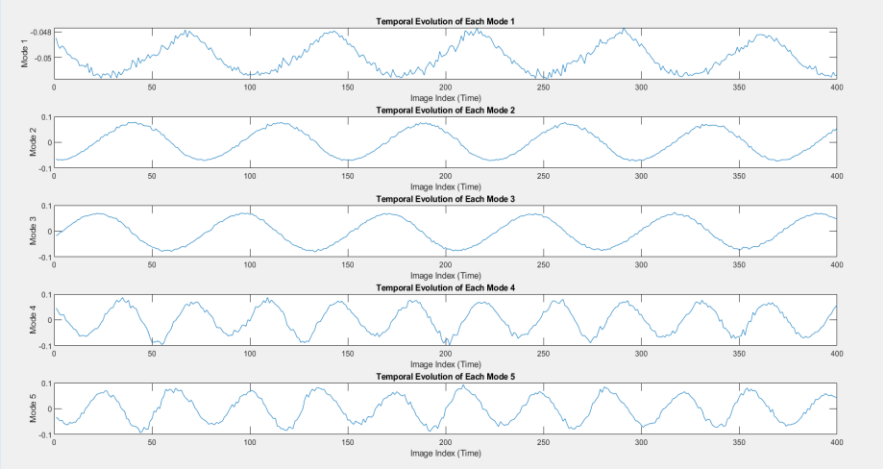


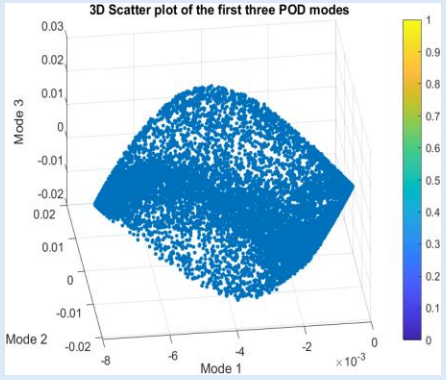


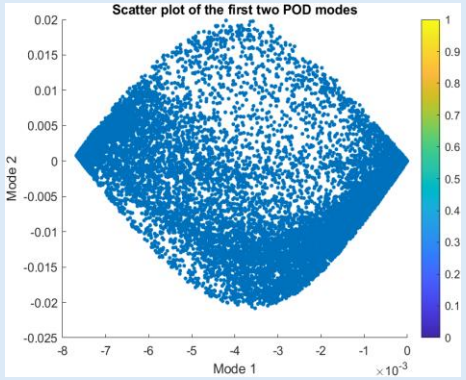


VORTEX SHEDDING / FLICKERING PRESENT

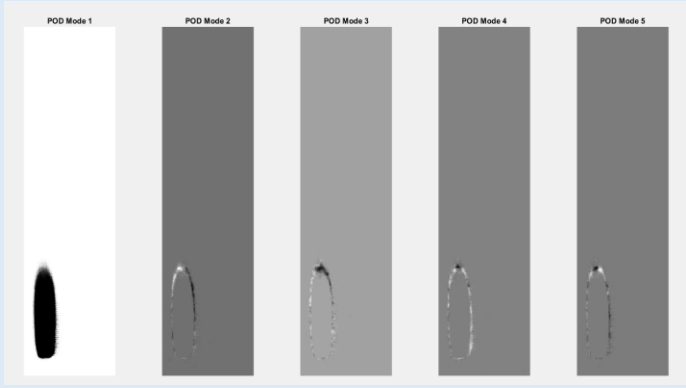


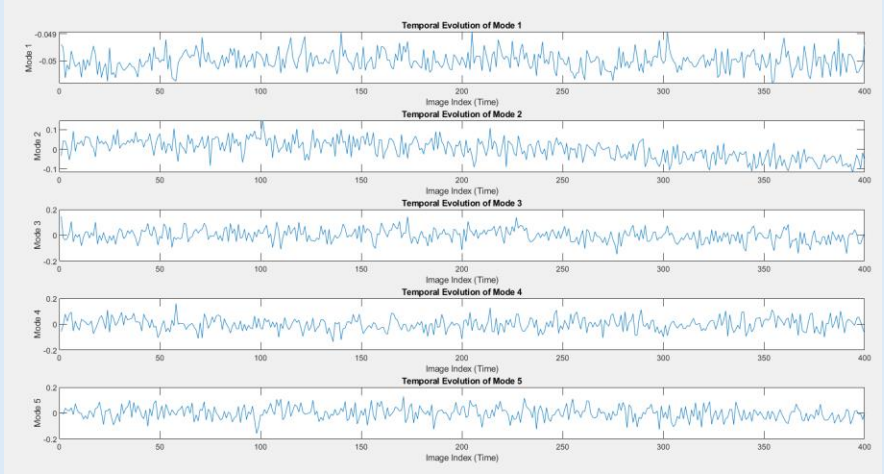


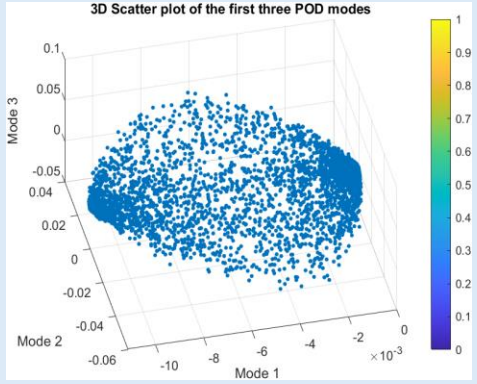


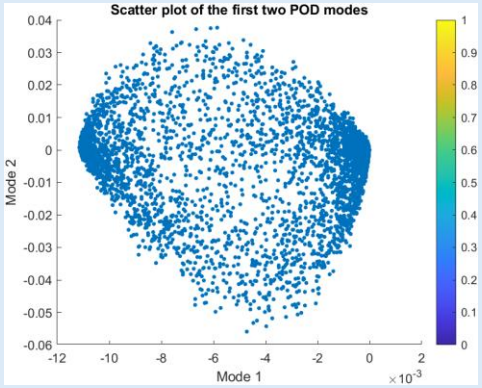


VORTEX SHEDDING/FLICKERING ABSENT



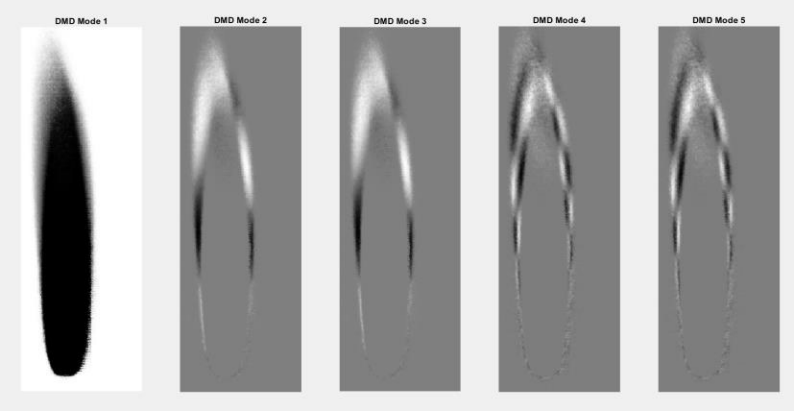


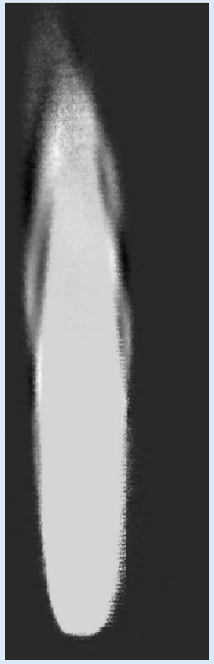


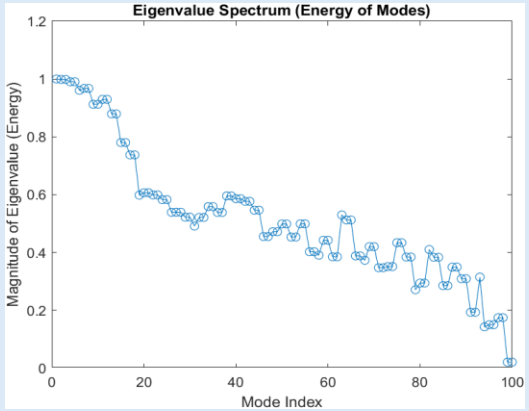


DYNAMIC MODE DECOMPOSITION (DMD)

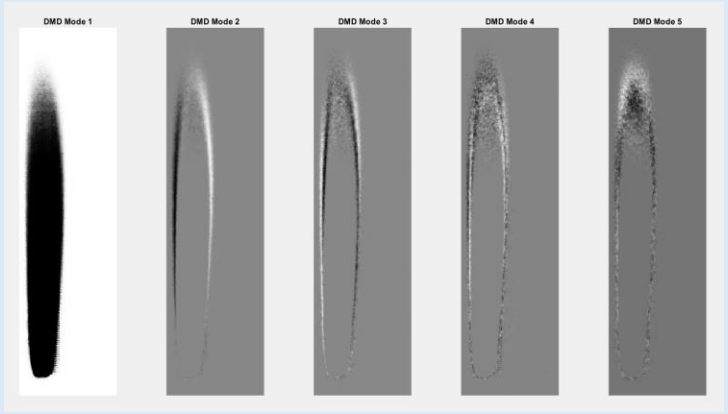
VORTEX SHEDDING / FLICKERING PRESENT

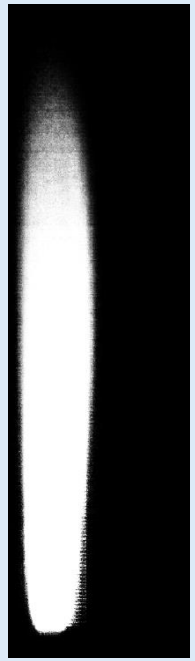


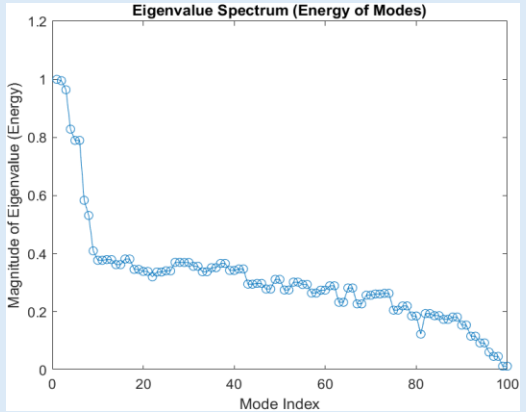




VORTEX SHEDDING/FLICKERING ABSENT

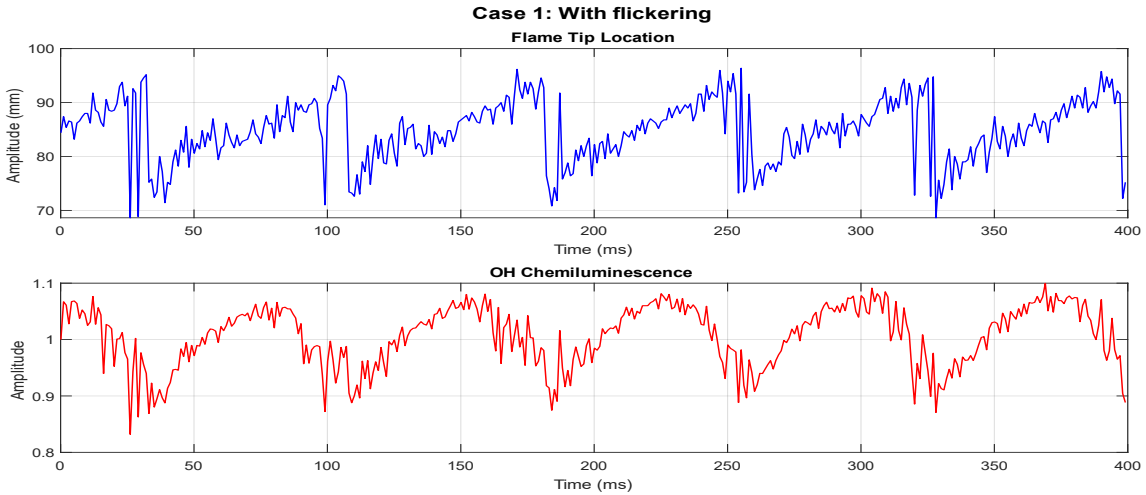


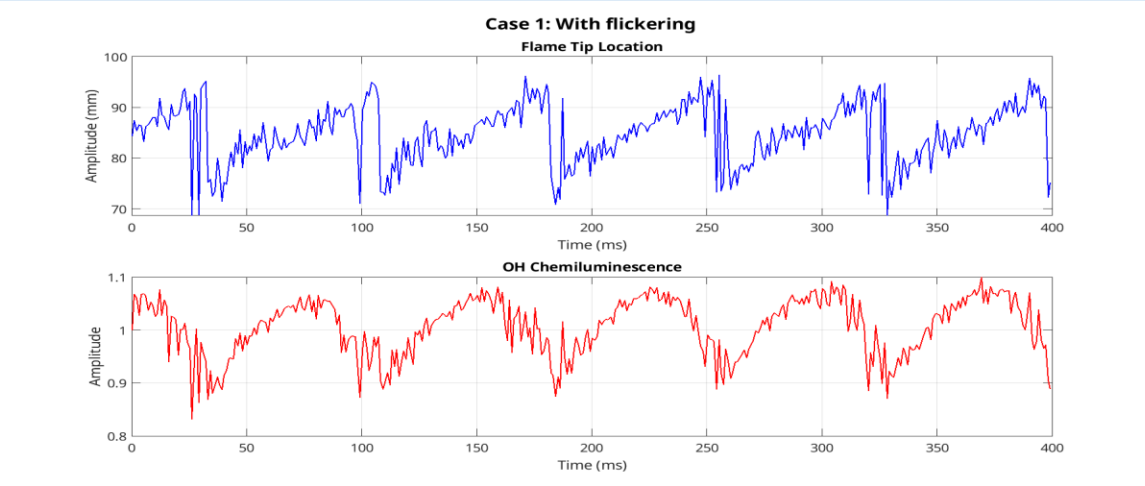




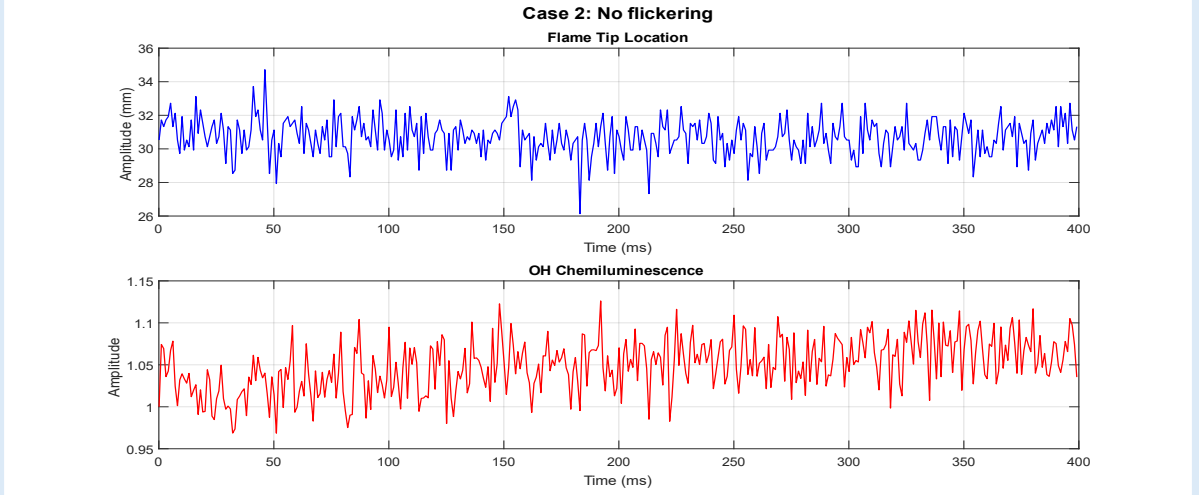
WHAT CAN THE RAW DATA REVEAL?

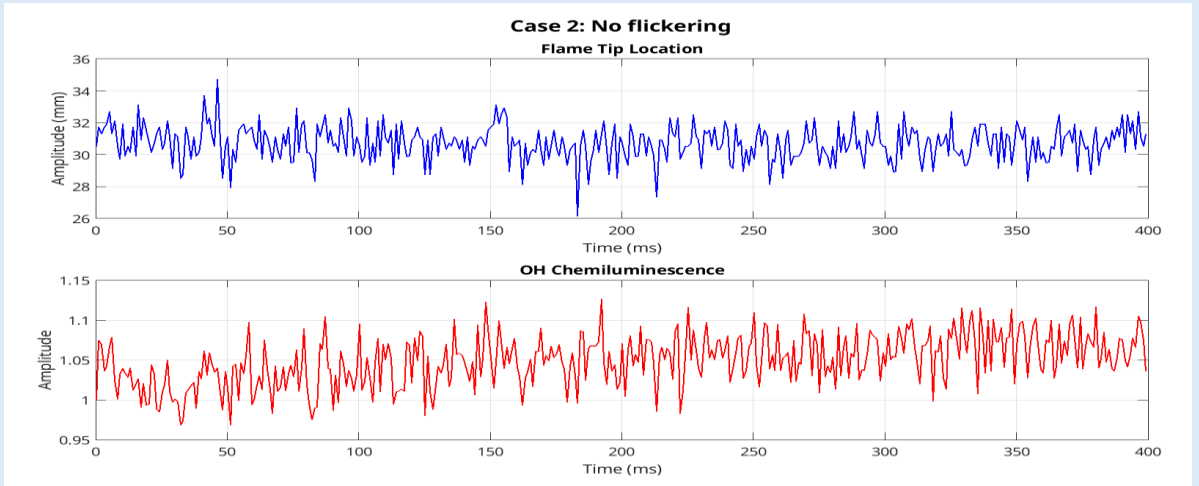
PERIODIC BEHAVIOR





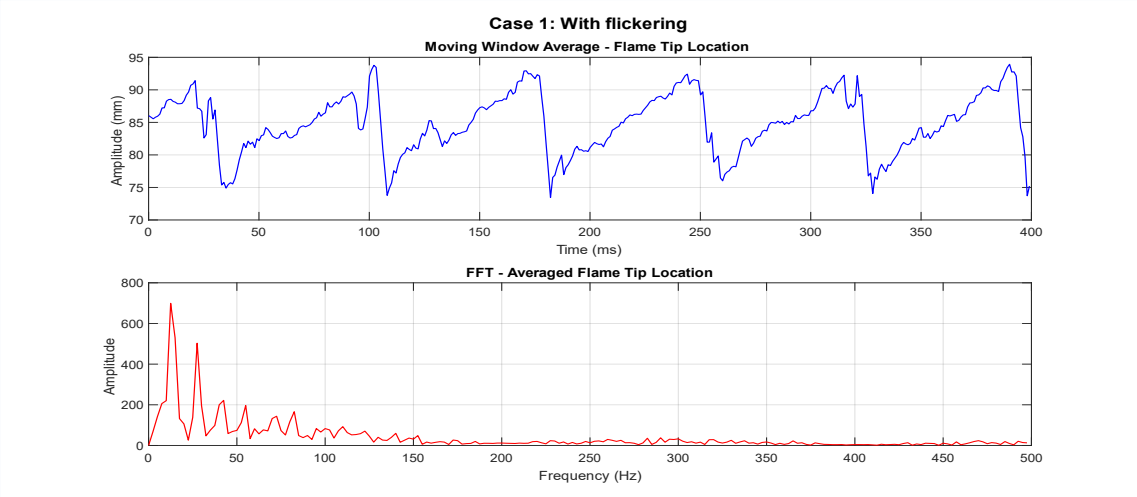
NO PERIODIC BEHAVIOR

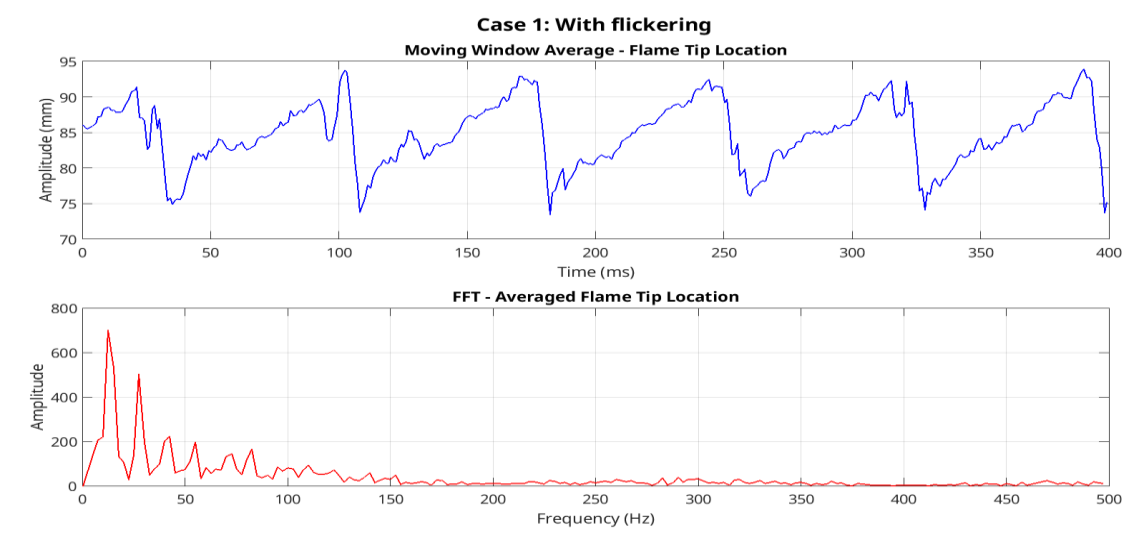




MOVING WINDOW AVERAGE AND THE FFT

PERIODIC BEHAVIOR





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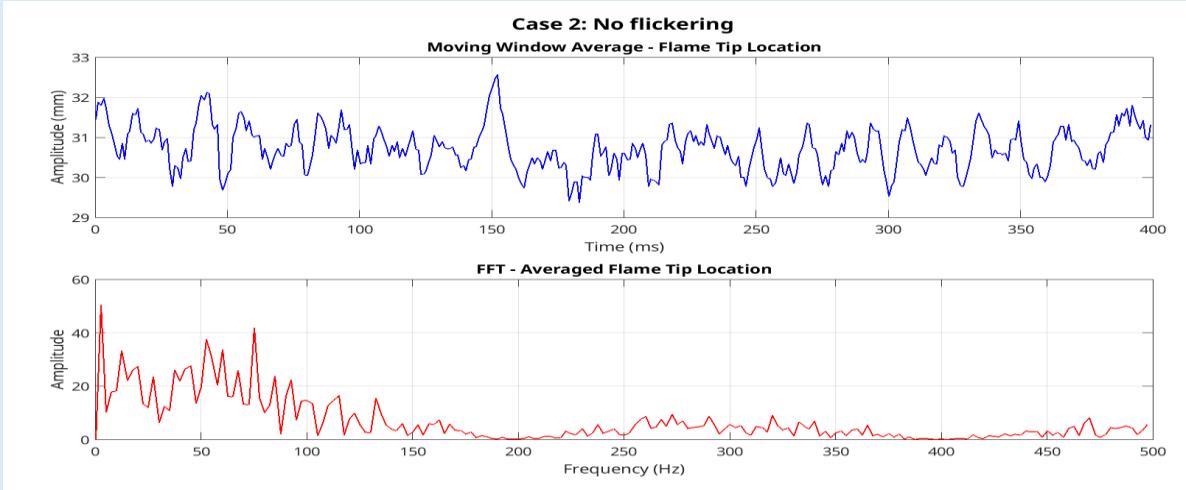
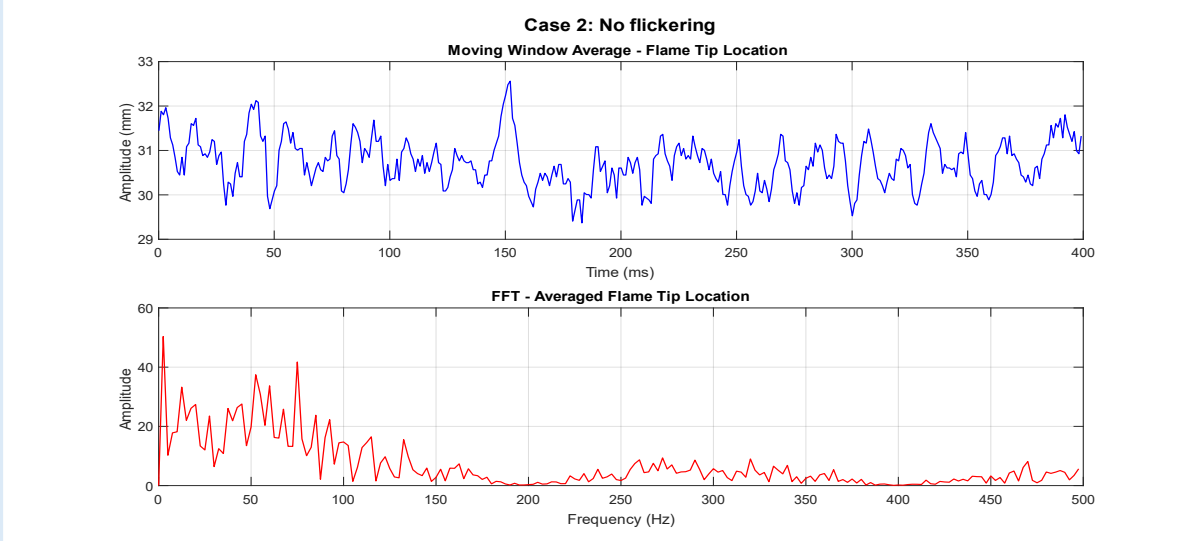
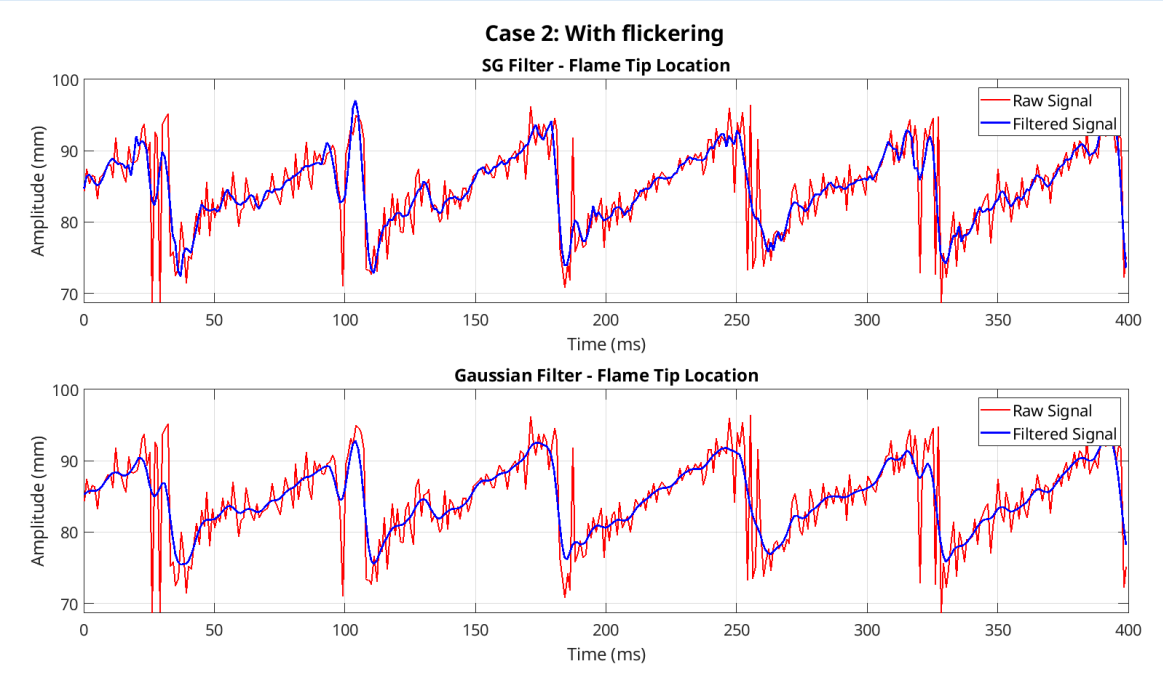
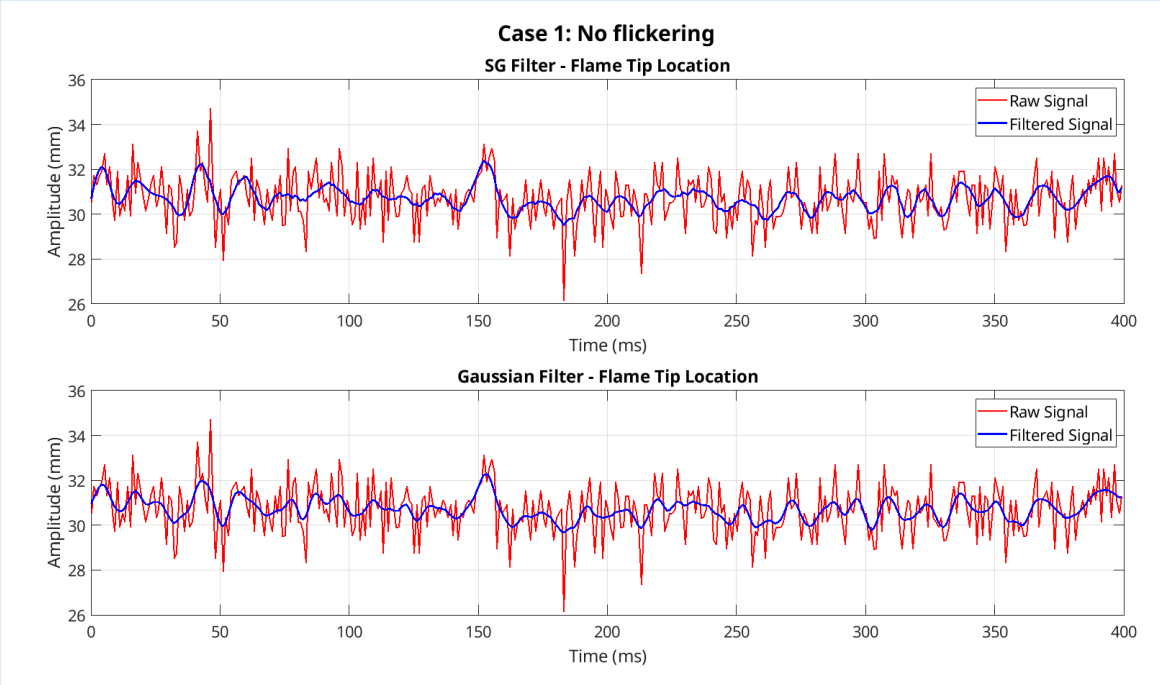


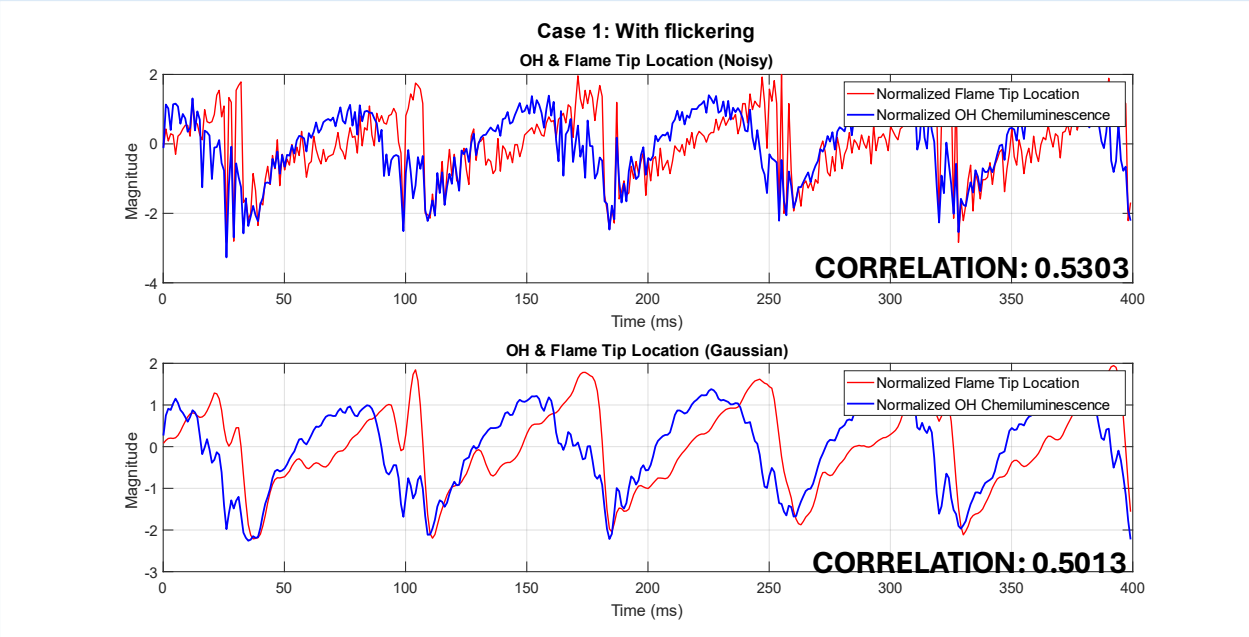


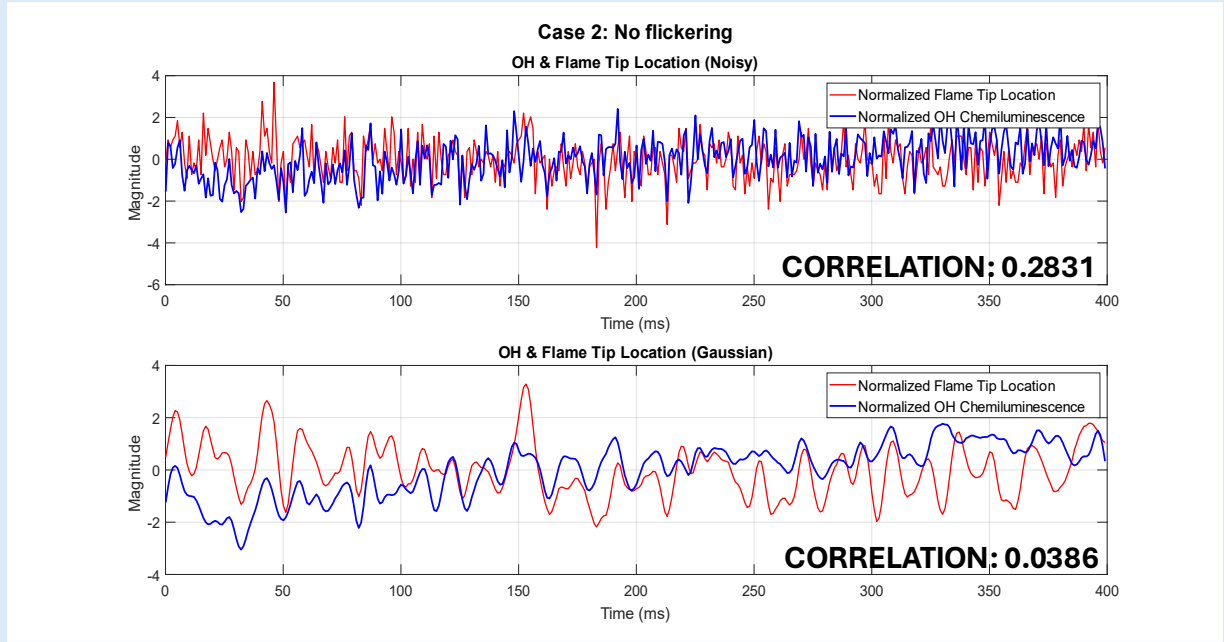
SG FILTERING OR GAUSSIAN?



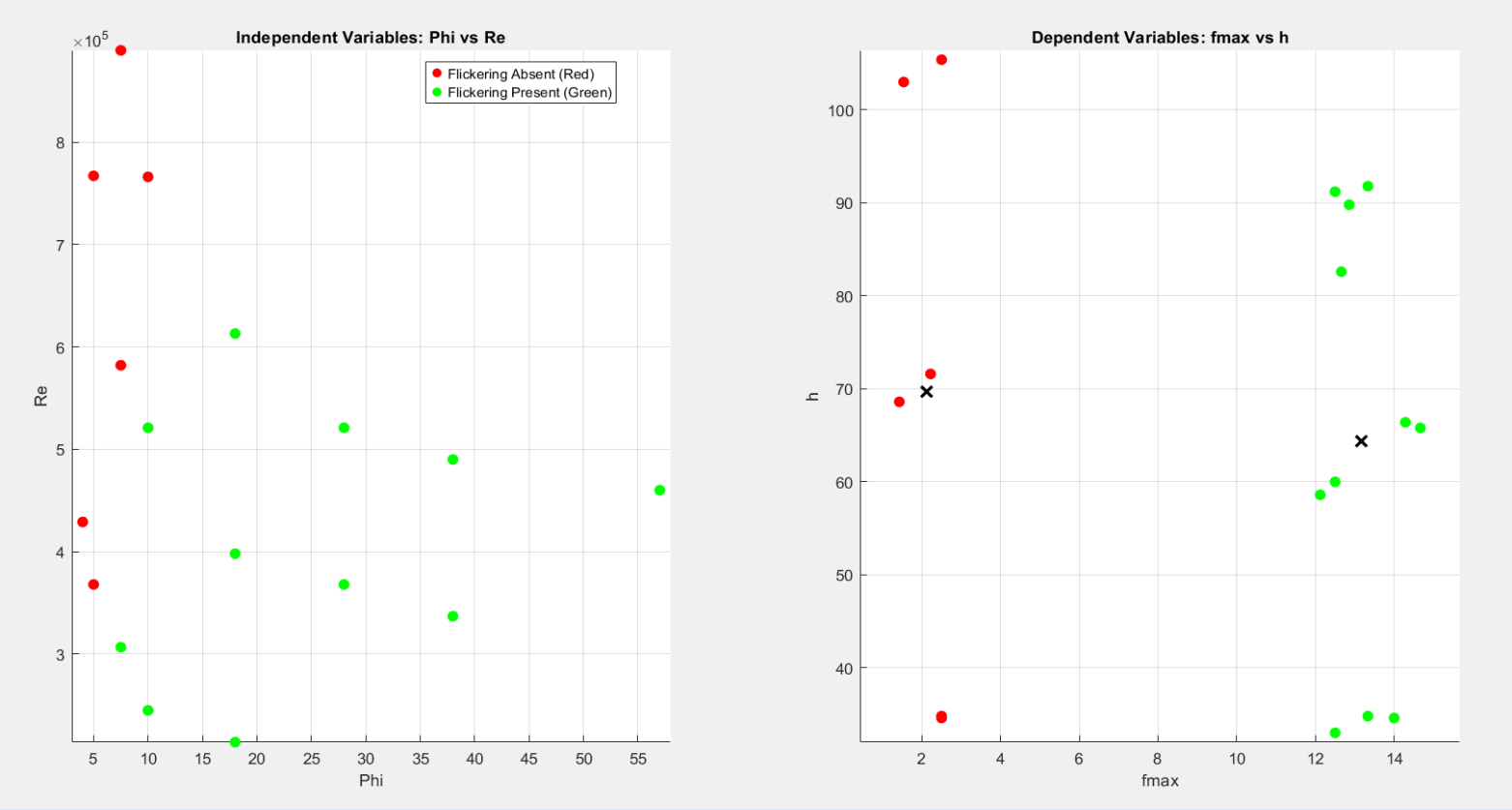


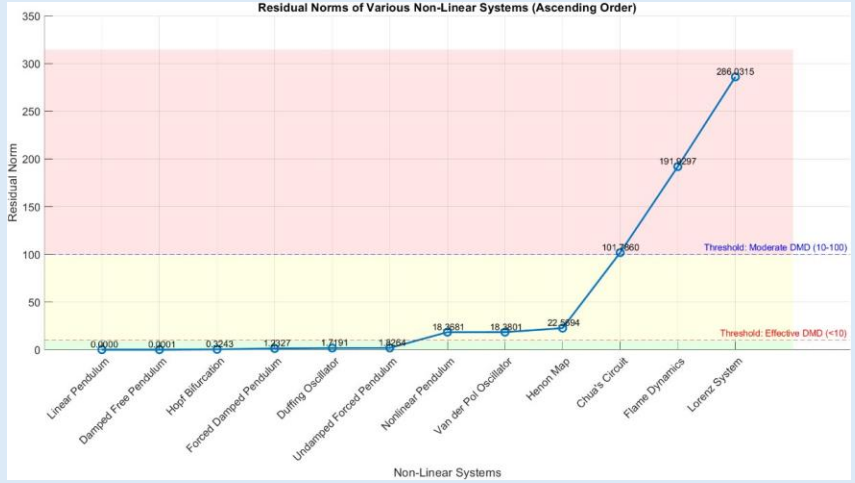
CORRELATION & LAG





FINAL INSIGHTS – IMAGES AND DATA





DATA

- **PREPROCESSING: Understand first, visualize next, operate after.**
- **FILTERING: Gaussian better than SG, double-check for pitfalls.**
- **CORRELATION: Noise produces correlation, wrong filtering blows it up.**