RadStaffer

Predicting Radiology Staffing Demands

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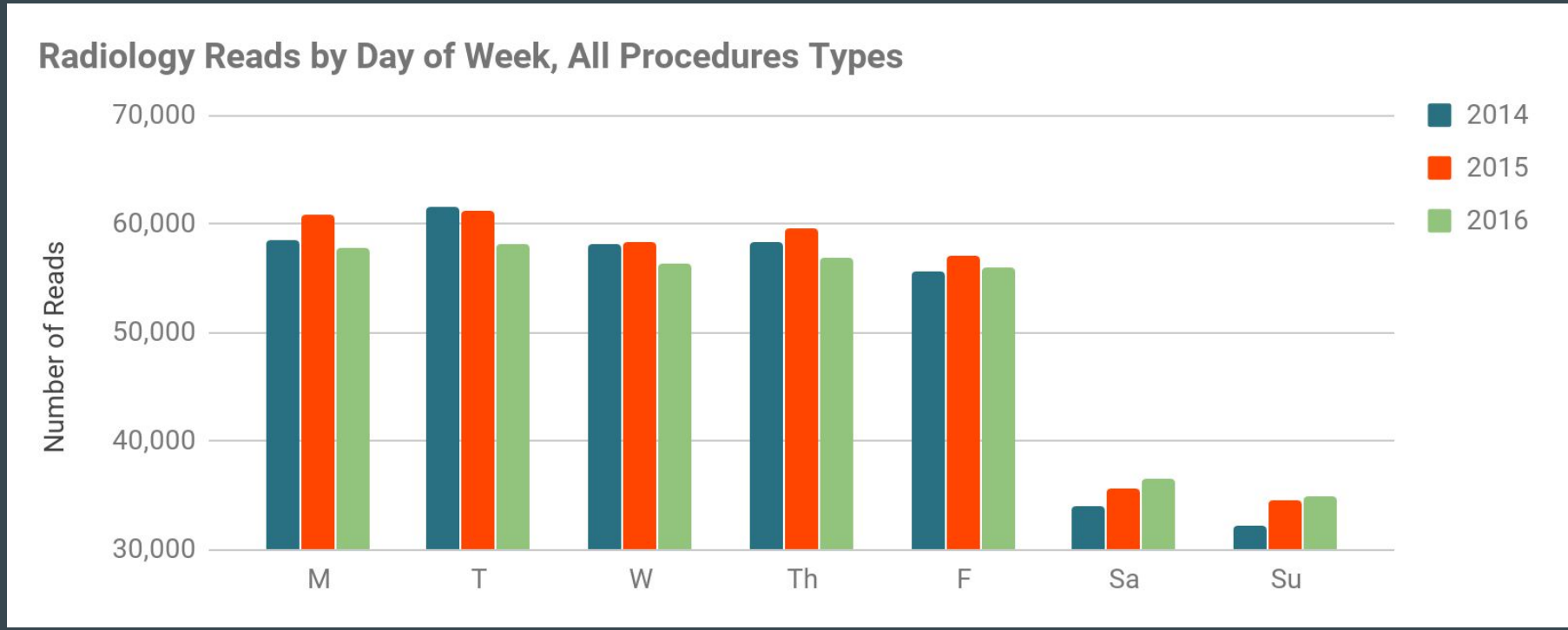
Amanda G. Bailey

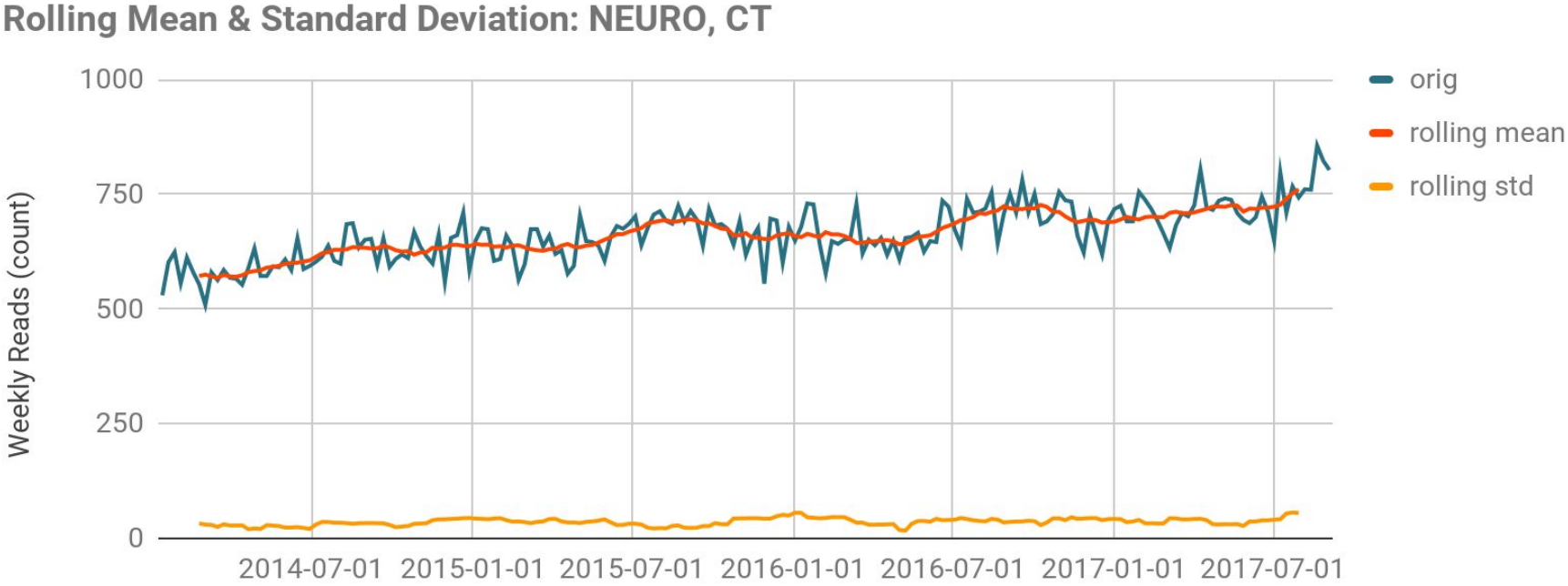
Rad Staffing is Complex: Routine and Emergency



Rad Staffing is Complex: Radiologists are Specialists

Specialty	Modality	% of all procedures
BODY	CC, CR, CT, MR, RF	50.36%
BREAST	CR, MG, MR, US	5.00%
IR	CC, CR, CT, US, XA	6.63%
MSK	CR, CT, MR, RF, US	13.51%
NEURO	CR, CT, MR, RF, US	20.84%
NUCMED	NM, PT	2.70%
PEDS	CR, CT	0.07%
OTHER	CC, CR, CT, MR, OT, US	0.88%

This is a Time-Series Challenge!



Approaches to Time-Series

Statistics and Machine Learning

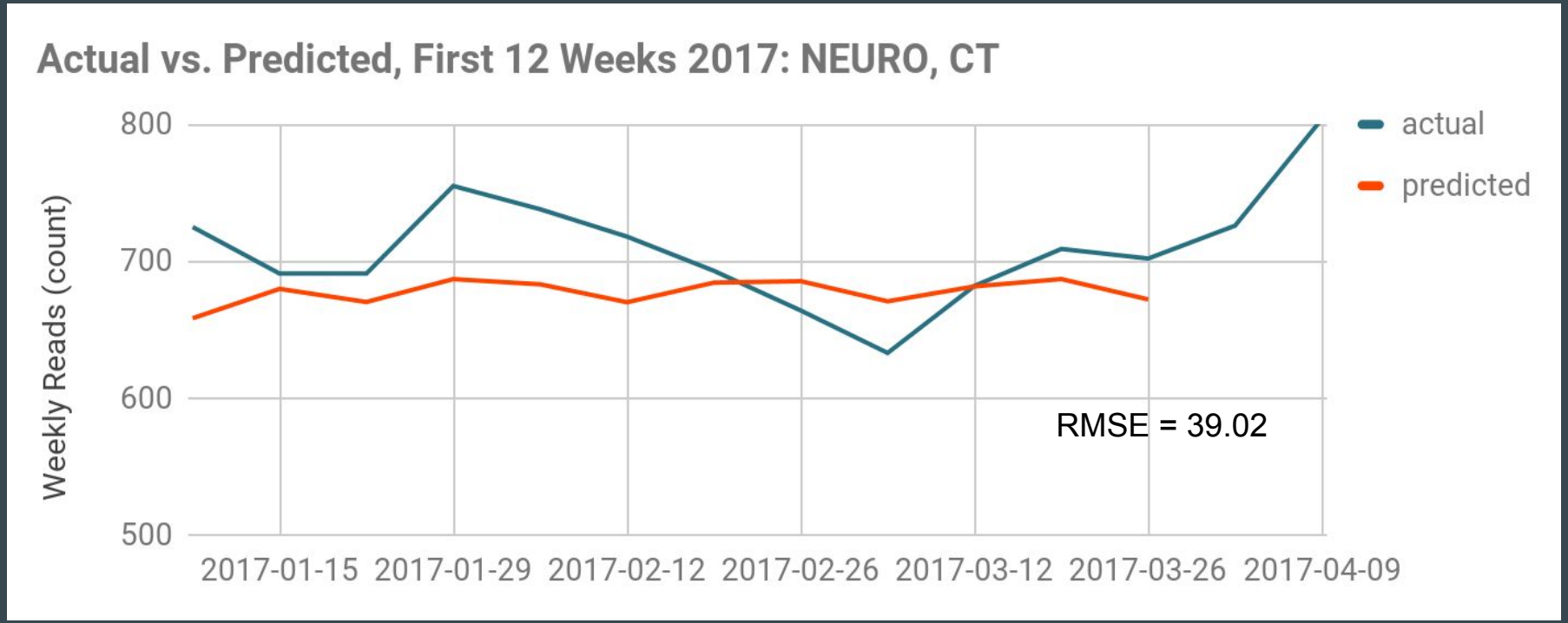
ARIMA

- traditional forecasting method
- linear regression for moving averages

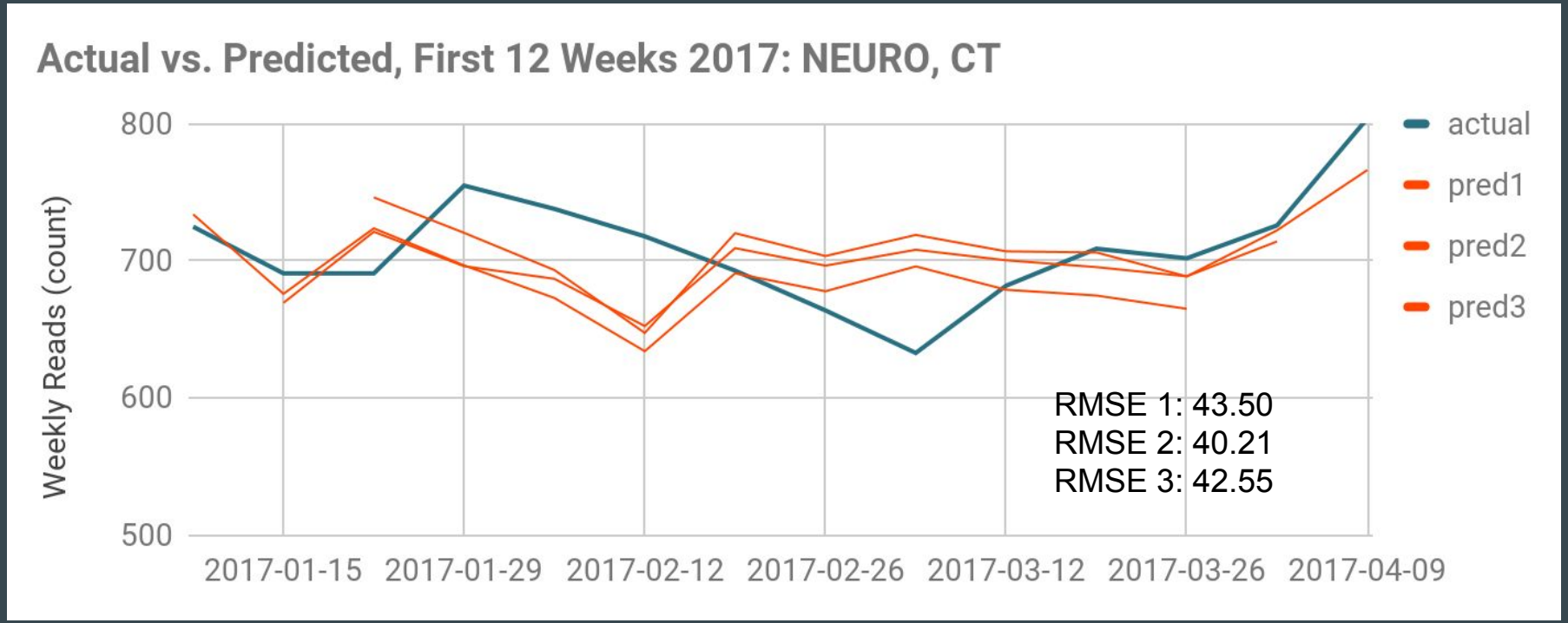
Recurrent Neural Network

- Long Short-term Memory (LSTM)
- ability to remember further back in the sequence chain

ARIMA: Good Conservative Predictions



LSTM: Full of Promise...with Ability to Learn



Future Opportunities

- Build independent models for “regular” and “after hours” procedures
- Construct models for each specialty/modality combination
- More fine-tuning on LSTM
- Add “what-if” capability

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