Ryan Muraglia

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SUMMARY

Motivated & detail-oriented recent graduate trained in computer science, statistics & biology. Passion for data-driven decision making & effective communication through elegant visualization. Excellent ability to work & learn independently, with strong interpersonal skills to flourish in team-based environments. Experienced with various classification, regression & clustering techniques in R & Python.

EDUCATION

Duke University, Durham, NC — August 2012 - August 2016
M.S., Computational Biology & Bioinformatics (CBB) — GPA: 3.7/4.0
(Former Ph.D candidate (ABD). Student-initiated voluntary withdrawal - preliminary exam completed 02/2015)

- Thesis: "Path optimization in free energy calculations" w/ Scott Schmidler, Dept. of Statistical Science
  Used reinforcement learning techniques (Q-learning, multi-armed bandit), dynamic programming graph search algorithms and sequential Monte Carlo sampling to achieve 2-5X reduction in computational cost of estimating free energies of binding for trial mutations in rational molecular design.
- Honors & Awards: Chancellor's scholarship (2012, $5,000), Best poster (CBB departmental retreat 2014, $100), Selected student research presentation (CBB recruitment 2016)
- Teaching & Leadership: CBB student committee chair, CBB 540 TA, CBB 511 discussion leader

University of Michigan, Ann Arbor, MI — September 2007 - April 2011
B.S., Microbiology; Academic Minor, Physics — GPA: 3.6/4.0

- Research: Analyzed high throughput 454 pyrosequencing data of gut microbiome in R.
- Honors & Awards: University honors (2009 - 2011), James B. Angell Scholar (2011)

Selected Coursework

- STA 863 Advanced statistical computing (Duke): MCMC methods, convergence & convex optimization
- CMPLXSYS 430 Math. modeling of infectious diseases (UM): ODE methods & inference in MATLAB
- CBB 540 Statistical methods in computational biology (Duke): Regression, EM & HMMs in R
- COMPSCI 270 Introduction to AI (Duke): Markov decision processes & machine learning in Python
- Coursera: Machine learning (Stanford), Using databases w/ Python (UM), Getting & cleaning data (JHU)

SKILLS

Scientific Computing	Proficient in R and Python. Comfortable with MATLAB/Octave
Cluster Computing	Unix, shell scripting, experienced in use of SLURM and SGE schedulers
Data Handling	MySQL, SQLite, dplyr, tidyr, retrieving JSON and XML from APIs
Presentation	LaTeX, beamer, ggplot2, knitr, Jupyter, Microsoft Powerpoint
Miscellaneous	Git, Microsoft Office (Word, Excel), Windows, Mac and Linux OS

NON-ACADEMIC PROJECTS

Analysis and visualization of Smash 4 data — *Primary tools: R, ggplot2, MySQL*

- A statistical perspective on character balance and strength in fighting games. Data represent character attributes and match records from a matchmaking website (~50K games/week, ~2M total in DB).
- Analyses are varied, and range from heat maps for character co-usage rates, to models using character attributes as predictors of performance, to revisualizations highlighting trends in community opinion.

Development of the NC Smash 4 player database — *Primary tools: MySQL, Python*

- Created database to facilitate tournament organization and improve seeding accuracy by tracking player performance (~40-60 unique entrants at local weeklies, ~200 at regional).
- Past tournament results are programmatically inserted into a MySQL DB using the challonge.com API.