

RAPSCA IONS

Please Take a Handout and Sign in

RAPSCA IONS

Version control (e.g., GitHub) and why you should use it	6
The basics of and differences between machine learning methods	6
Databasing (SQL), particularly with python	6
Making the most of LaTeX: sty files, bibliographies, and more	5
The basics of high performance computing and parallel programming	5
A guide to different programming paradigms, starting with object oriented programming	5
Setting up a professional webpage	5
Making your shell/environment work for you	5
Making interactive and/or especially pretty plots	5
Gists in GitHub	4
CVs, resumes, and cover letters	4
Making your code pip installable	4
Dealing with table data	3
A guide to integrated development environments (IDEs) and text editors	3
A quick overview of things you should know of (e.g., Overleaf, GitHub, python + essential packages)	3
Web development with python: flask/django	2

RAPSCA IONS

Creating a CV and Resume

Kyle Dettman

Feb 12, 2020

Overview

- ▶ Basic Introduction to:
 - ▶ Curriculum Vitae (CV)
 - ▶ Resumes
 - ▶ Cover Letter
- ▶ Use of each document
- ▶ Format and Content
- ▶ Resources
- ▶ “Hack”

Resumes and CVs

- ▶ CV is a comprehensive report of your experience and accomplishments, especially in academia/research
- ▶ Resume typically is a strategic and condensed list
 - ▶ Usually a subset but not always

What Goes on a CV vs Resume	
Curriculum Vitae (CV)	Resume
 Contact Information	 Contact Information
 Education	 Education
 Professional Experience	 Professional Summary
 Publications	 Skills
 Awards & Honors	 Work Experience
 Grants & Fellowships	
 Talks & Conferences Participation	



CV = Summary

Resume=Snapshot

Resumes and CVs

	CV	Resume
Audience	Academics, most likely in your field	Employers in industry
Goal	Full history of your academic credentials: research, teaching, talks, etc.	Brief look at your relevant experiences and skills
Focus	Academic achievements and scholarly potential	Skills that will be useful to an industry/specific posting
Length	However long you need it to be*	One page

*how long something can be vs how long it needs to be are very different

Cover Letter

- ▶ Typically 1 page
 - ▶ Short and simple
- ▶ Elaborate on **how** the items in your resume are relevant to the position
- ▶ Avoid “one size fits all”
- ▶ Tell a story
 - ▶ Show personality
- ▶ Do some research into the hiring manager
- ▶ Don’t be forceful in a call-to-action

STAND OUT FROM THE CROWD

Anatomy of a Perfect Cover Letter

- 1** **YOUR NAME** 555-212-8533
your-email@gmail.com
- 2** Dear **[Recruiter/Hiring Manager's Name]**,
- 3** **INTRO PARAGRAPH:**
Grab the reader's attention right away with a **unique opening line**. In a few sentences, describe what role you're applying for, why you're interested in the job (**and the company itself**), and what makes you a good fit.
- 4** **BODY PARAGRAPH(S):**
List the responsibilities of your position, projects you participated in, skills you acquired, and above all, the impact that you had. Feel free to include any accomplishments or awards you received.
- 5** **CLOSING PARAGRAPH:**
Re-emphasize why you're interested in the position, why you're passionate about the company, and why you'd make a good fit. In addition, describe how you, if hired, would contribute to the company.
- 6** **CALL-TO-ACTION:**
Prompt the reader to move forward with your application by inviting them to follow up with you, and thank them for reviewing your cover letter.
- 6** Sincerely,
[Your name]

Resumes for Industry

- ▶ Keep it short
 - ▶ You don't need a 2 page Resume
- ▶ Anatomy
 - ▶ **Heading:** Name, contact info
 - ▶ **Education:** Undergraduate & Graduate degrees
 - ▶ **Technical Skills:** Programming languages, specialized software, lab skills
 - ▶ **Projects:** Academic or personal, relevant to position
 - ▶ **Relevant Experience:** Experiences relevant to position, most recent first
 - ▶ **Leadership Experience**
 - ▶ **Coursework:** if necessary

Steven Boada, Ph.D

Contact Information	(615) 200-0119 stevenboada@gmail.com	github.com/boada linkedin.com/in/theboada
Skills	Machine Learning: Linear Models, Decision Trees, SVM, Clustering, Deep Learning, Feature Engineering Statistical Methods: Hypothesis testing, error analysis, Monte Carlo methods, maximum likelihood Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, PyTorch), MySQL, ANSI C, Linux Command Line Environments, GPGPU, and HPC applications Leadership: Demonstrable ability to tackle loosely defined problems; 5+ years organizing workflows from group planning sessions through implementation and delivery of final products, Eagle Scout.	
Professional Experience	Insight Data Science, New York, New York USA <i>Fellow</i> January, 2020 - Present <ul style="list-style-type: none">• Addressed a shortage of NYC health inspectors which caused critical health violations to remain unaddressed for extended periods of time potentially harming the general public.• Trained a random forest in Python to prioritize NYC restaurant inspections based on environmental variables and their past inspection histories and provided the results to NYC through an easy to use API• Resulted in a ~2.5% improved performance of NYC inspectors, leading to critical violations being discovered up to 7 days earlier than by the current approach implemented by NYC. Dept. of Physics and Astronomy, Rutgers University, New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 - 2020 <ul style="list-style-type: none">• Designed and built parallelized pipelines to process and analyze TBs of astronomical imaging, producing calibrated, standardized data catalogs and rigorous results leading to 2 peer reviewed publications and several hundred hours of telescope time.• Project managed and coordinated a team of 4, including both senior scientists and graduate students, to perform quality control tasks; deliver science products; and produce peer-reviewed publications.• Contributed to open source, astronomy-focused, Python projects through bug fixes and feature additions: see PHOTOMETRYPipeline, ASTLIB, and EASYGALAXY on Github as examples. Texas A&M University, College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 - 2016 <ul style="list-style-type: none">• Demonstrated that traditional statistical methods could be improved by up to a factor of 3, when combined with machine learning, specifically for a planned large observation campaign.• Implemented these machine learning methods and produced improved results in a pilot survey of the real sky and under real-world conditions.• Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).• Presented scientific results in high-impact, astrophysical journals and at international conferences.	
Data Projects	Using Imaging to Infer Galaxy Properties <ul style="list-style-type: none">• Predicted galaxy chemical composition with ~5% error from pseudo-three color imaging, a result better than other current, similar efforts in the literature.• Leveraged Convolution Neural Networks, trained on GPUs, to analyze ~150,000 images from the Sloan Digital Sky Survey.• Project start to publication: 4 months (typically ~1.5 years). See: github.com/boada/galaxy-trns. Predicting Tournament Performance in WarMachine <ul style="list-style-type: none">• Created an Elo based model to forecast the results of upcoming tournaments and identify potential upsets.• Integrated predictions into a local community ranking system and forecasted ~1800 tournament game results of the popular tabletop game using Python (e.g., Pandas).	
Education	Texas A&M University, College Station, Texas <ul style="list-style-type: none">• Ph.D, Physics (astronomy focus), 2016	The University of Tennessee, Knoxville, Tennessee <ul style="list-style-type: none">• M.S., Physics (astronomy focus), 2009• B.S., Physics, 2007

Resumes for Industry

▶ Strong Bullet Points

- ▶ Action + Result format
- ▶ Use past tense, avoid present tense
 - ▶ Collaborated instead of Collaborating
- ▶ Quantify your contributions
 - ▶ Make results measurable

▶ Example:

"Reduced object rendering time by 75% by implementing distributed caching, leading to a 10% reduction in log-in time."

Steven Boada, Ph.D

Contact Information	(615) 200-0119 stevenboada@gmail.com	github.com/boada linkedin.com/in/theboada
Skills	Machine Learning: Linear Models, Decision Trees, SVM, Clustering, Deep Learning, Feature Engineering Statistical Methods: Hypothesis testing, error analysis, Monte Carlo methods, maximum likelihood Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, PyTorch), MySQL, ANSI C, Linux Command Line Environments, GPGPU, and HPC applications Leadership: Demonstrable ability to tackle loosely defined problems; 5+ years organizing workflows from group planning sessions through implementation and delivery of final products, Eagle Scout.	
Professional Experience	Insight Data Science, New York, New York USA <i>Fellow</i> January, 2020 - Present <ul style="list-style-type: none">• Addressed a shortage of NYC health inspectors which caused critical health violations to remain unaddressed for extended periods of time potentially harming the general public.• Trained a random forest in Python to prioritize NYC restaurant inspections based on environmental variables and their past inspection histories and provided the results to NYC through an easy to use API• Resulted in a ~2.5% improved performance of NYC inspectors, leading to critical violations being discovered up to 7 days earlier than by the current approach implemented by NYC. Dept. of Physics and Astronomy, Rutgers University, New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 - 2020 <ul style="list-style-type: none">• Designed and built parallelized pipelines to process and analyze TBs of astronomical imaging, producing calibrated, standardized data catalogs and rigorous results leading to 2 peer reviewed publications and several hundred hours of telescope time.• Project managed and coordinated a team of 4, including both senior scientists and graduate students, to perform quality control tasks; deliver science products; and produce peer-reviewed publications.• Contributed to open source, astronomy-focused, Python projects through bug fixes and feature additions: see PHOTOMETRYPIPELINE, ASTLIB, and EASYGALAXY on Github as examples. Texas A&M University, College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 - 2016 <ul style="list-style-type: none">• Demonstrated that traditional statistical methods could be improved by up to a factor of 3, when combined with machine learning, specifically for a planned large observation campaign.• Implemented these machine learning methods and produced improved results in a pilot survey of the real sky and under real-world conditions.• Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).• Presented scientific results in high-impact, astrophysical journals and at international conferences.	
Data Projects	Using Imaging to Infer Galaxy Properties <ul style="list-style-type: none">• Predicted galaxy chemical composition with ~5% error from pseudo-three color imaging, a result better than other current, similar efforts in the literature.• Leveraged Convolution Neural Networks, trained on GPUs, to analyze ~150,000 images from the Sloan Digital Sky Survey.• Project start to publication: 4 months (typically ~1.5 years). See: github.com/boada/galaxy-trns. Predicting Tournament Performance in WarMachine <ul style="list-style-type: none">• Created an Elo based model to forecast the results of upcoming tournaments and identify potential upsets.• Integrated predictions into a local community ranking system and forecasted ~1800 tournament game results of the popular tabletop game using Python (e.g., Pandas).	
Education	Texas A&M University, College Station, Texas <ul style="list-style-type: none">• Ph.D, Physics (astronomy focus), 2016	The University of Tennessee, Knoxville, Tennessee <ul style="list-style-type: none">• M.S., Physics (astronomy focus), 2009• B.S., Physics, 2007

Resumes for Industry

▶ Strong Bullet Points

- ▶ Action + Result format
- ▶ Use past tense, avoid present tense
 - ▶ Collaborated instead of Collaborating
- ▶ Quantify your contributions
 - ▶ Make results measurable

▶ Example:

"Reduced object rendering time by 75% by implementing distributed caching, leading to a 10% reduction in log-in time."

Steven Boada, Ph.D

Contact Information	(615) 200-0119 stevenboada@gmail.com	github.com/boada linkedin.com/in/theboada
Skills	Machine Learning: Linear Models, Decision Trees, SVM, Clustering, Deep Learning, Feature Engineering Statistical Methods: Hypothesis testing, error analysis, Monte Carlo methods, maximum likelihood Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, PyTorch), MySQL, ANSI C, Linux Command Line Environments, GPGPU, and HPC applications Leadership: Demonstrable ability to tackle loosely defined problems; 5+ years organizing workflows from group planning sessions through implementation and delivery of final products, Eagle Scout.	
Professional Experience	Insight Data Science, New York, New York USA <i>Fellow</i> January, 2020 - Present <ul style="list-style-type: none">• Addressed a shortage of NYC health inspectors which caused critical health violations to remain unaddressed for extended periods of time potentially harming the general public.• Trained a random forest in Python to prioritize NYC restaurant inspections based on environmental variables and their past inspection histories and provided the results to NYC through an easy to use API• Resulted in a ~2.5% improved performance of NYC inspectors, leading to critical violations being discovered up to 7 days earlier than by the current approach implemented by NYC. Dept. of Physics and Astronomy, Rutgers University, New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 - 2020 <ul style="list-style-type: none">• Designed and built parallelized pipelines to process and analyze TBs of astronomical imaging, producing calibrated, standardized data catalogs and rigorous results leading to 2 peer reviewed publications and several hundred hours of telescope time.• Project managed and coordinated a team of 4, including both senior scientists and graduate students, to perform quality control tasks; deliver science products; and produce peer-reviewed publications.• Contributed to open source, astronomy-focused, Python projects through bug fixes and feature additions: see PHOTOMETRYPIPELINE, ASTLIB, and EASYGALAXY on Github as examples. Texas A&M University, College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 - 2016 <ul style="list-style-type: none">• Demonstrated that traditional statistical methods could be improved by up to a factor of 3, when combined with machine learning, specifically for a planned large observation campaign.• Implemented these machine learning methods and produced improved results in a pilot survey of the real sky and under real-world conditions.• Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).• Presented scientific results in high-impact, astrophysical journals and at international conferences.	
Data Projects	Using Imaging to Infer Galaxy Properties <ul style="list-style-type: none">• Predicted galaxy chemical composition with ~5% error from pseudo-three color imaging, a result better than other current, similar efforts in the literature.• Leveraged Convolution Neural Networks, trained on GPUs, to analyze ~150,000 images from the Sloan Digital Sky Survey.• Project start to publication: 4 months (typically ~1.5 years). See: github.com/boada/galaxy-trns. Predicting Tournament Performance in WarMachine <ul style="list-style-type: none">• Created an Elo based model to forecast the results of upcoming tournaments and identify potential upsets.• Integrated predictions into a local community ranking system and forecasted ~1800 tournament game results of the popular tabletop game using Python (e.g., Pandas).	
Education	Texas A&M University, College Station, Texas <ul style="list-style-type: none">• Ph.D, Physics (astronomy focus), 2016	The University of Tennessee, Knoxville, Tennessee <ul style="list-style-type: none">• M.S., Physics (astronomy focus), 2009• B.S., Physics, 2007

Porting your CV to a Resume

- ▶ What position am I applying for?
- ▶ What are the requirements?
 - ▶ Am I addressing them appropriately?
- ▶ What is the purpose of each item in CV?
- ▶ Is there a balance between soft and technical skills?
- ▶ What can be left out?

Porting your CV to a Resume

CV

Steven Boada, Ph.D

Contact Information	Department of Physics and Astronomy 136 Frelinghuysen Rd Rutgers University Piscataway, NJ 08854	<i>Phone:</i> +1 (615) 200-0119 <i>E-mail:</i> boada@physics.rutgers.edu <i>WWW:</i> http://boada.github.io
Research Interests	Observation Cosmology, Large-area Sky Surveys (e.g., DES, LSST, SDSS, ACT, SPT), Galaxy Clusters, High Performance Computing (HPC), Galaxy Evolution, Interacting Galaxies and Morphology.	
Education	Texas A&M University , College Station, Texas USA <ul style="list-style-type: none">Ph.D, Physics (astronomy focus), August, 2016 The University of Tennessee , Knoxville, Tennessee USA <ul style="list-style-type: none">M.S., Physics (astronomy focus), August, 2009B.S., Physics, May, 2007	
Professional Experience	Dept. of Physics and Astronomy, Rutgers University , New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 – Present <ul style="list-style-type: none">Designed and built massive, parallelized, Python pipelines to process and analyze TBs of astronomical imaging; producing calibrated, standardized data catalogs and rigorous results.Coordinated a team of 4, including both senior scientists and graduate students, to perform quality control tasks; deliver science products; and produce peer-reviewed publications.Contributed to open source Python projects including: PHOTOMETRYPIPELINE, ASTLIB, and EASYGALAXY. Texas A&M University , College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 – 2016 <ul style="list-style-type: none">Proved simulated results for an upcoming astronomical survey could be improved, by a factor of ~3, over in-house statistical methods by using Random Forest regression. Implemented these ML methods and produced improved results in a pilot survey of the real sky and under real-world conditions.Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).Presented scientific results in high-impact, peer reviewed journals and at international conferences. The University of Tennessee , Knoxville, Tennessee USA <i>Master's Candidate</i> August, 2007 – 2009 <ul style="list-style-type: none">Implemented a C-based pipeline to process hundreds of GBs of simulation results. Including a computer vision algorithm to automatically analyze and compare results to expected targets.Optimized simulation parameters using a genetic algorithm based search utilizing HPC (100k+ core) systems at the National Center for Computational Science, part of Oak Ridge National Laboratory	
Observing Experience	Proposals <ul style="list-style-type: none"><i>On the Trail of the Most Massive Galaxy Clusters in the Universe</i> Co-1 (PI: J. Hughes), KPNO, 3 nights awarded, 2016<i>X-ray Confirmation of Candidate Planck Clusters with Swift</i> Co-1 (PI: J. Hughes), Swift X-ray Observatory, 2016<i>Measuring the Masses of X-ray-Selected, Low-Mass Galaxy Clusters and Groups with Integral Field Spectroscopy</i> Co-1 (PI: N. Mehrrens), McDonald Observatory, 4 nights awarded, 2013<i>Measuring the Masses of Galaxy Clusters with Integral Field Spectroscopy</i> Co-1 (PI: C. Papovich), McDonald Observatory, 9 nights awarded, 2012<i>Measuring the Masses of Galaxy Clusters with Integral Field Spectroscopy</i> Co-1 (PI: C. Papovich), McDonald Observatory, 5 nights awarded, 2012 Telescopes	

Resume

Steven Boada, Ph.D

Contact Information	(615) 200-0119 stevenboada@gmail.com	github.com/boada linkedin.com/in/theboada
Skills	Machine Learning: Linear Models, Decision Trees, SVM, Clustering, Deep Learning, Feature Engineering Statistical Methods: Hypothesis testing, error analysis, Monte Carlo methods, maximum likelihood Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, PyTorch), mySQL, ANSI C, Linux Command Line Environments, GPGPU, and HPC applications Leadership: Demonstrable ability to tackle loosely defined problems; 5+ years organizing workflows from group planning sessions through implementation and delivery of final products; Eagle Scout.	
Professional Experience	Insight Data Science , New York, New York USA <i>Fellow</i> January, 2020 – Present <ul style="list-style-type: none">Addressed a shortage of NYC health inspectors which caused critical health violations to remain unaddressed for extended periods of time potentially harming the general public.Trained a random forest in Python to prioritize NYC restaurant inspections based on environmental variables and their past inspection histories and provided the results to NYC through an easy to use API.Resulted in a ~2.5% improved performance of NYC inspectors, leading to critical violations being discovered up to 7 days earlier than by the current approach implemented by NYC. Dept. of Physics and Astronomy, Rutgers University , New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 – 2020 <ul style="list-style-type: none">Designed and built parallelized pipelines to process and analyze TBs of astronomical imaging; producing calibrated, standardized data catalogs and rigorous results leading to 2 peer reviewed publications and several hundred hours of telescope time.Project managed and coordinated a team of 4, including both senior scientists and graduate students, to perform quality control tasks; deliver science products; and produce peer-reviewed publications.Contributed to open source, astronomy-focused, Python projects through bug fixes and feature additions: see PHOTOMETRYPIPELINE, ASTLIB, and EASYGALAXY on GitHub as examples. Texas A&M University , College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 – 2016 <ul style="list-style-type: none">Demonstrated that traditional statistical methods could be improved by up to a factor of 3, when combined with machine learning, specifically for a planned large observation campaign.Implemented these machine learning methods and produced improved results in a pilot survey of the real sky and under real-world conditions.Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).Presented scientific results in high-impact, astrophysical journals and at international conferences.	
Data Projects	Using Imaging to Infer Galaxy Properties <ul style="list-style-type: none">Predicted galaxy chemical composition with ~5% error from pseudo-three color imaging, a result better than other current, similar efforts in the literature.Leveraged Convolution Neural Networks, trained on GPUs, to analyze ~150,000 images from the Sloan Digital Sky Survey.Project start to publication: 4 months (typically ~1.5 years). See: github.com/boada/galaxy-cnns. Predicting Tournament Performance in Warmachine <ul style="list-style-type: none">Created an Elo based model to forecast the results of upcoming tournaments and identify potential upsets.Integrated predictions into a local community ranking system and forecasted ~1800 tournament game results of the popular tabletop game using Python (e.g., Pandas).	
Education	Texas A&M University , College Station, Texas <ul style="list-style-type: none">Ph.D, Physics (astronomy focus), 2016	The University of Tennessee , Knoxville, Tennessee <ul style="list-style-type: none">M.S., Physics (astronomy focus), 2009B.S., Physics, 2007

Resources

- ▶ careers.rutgers.edu/pursue
 - ▶ General purpose links to many resources
- ▶ careers.rutgers.edu/guide
 - ▶ Reference document for job hunting
- ▶ gsnb.rutgers.edu/versatilephd
 - ▶ Testimonials and support from prior academics
- ▶ Applicant Tracking Systems (ATS)
 - ▶ Jobscan
- ▶ Drop-in Resume reviews
 - ▶ University Career Services: Mondays & Tuesdays 12-3pm

Acknowledgements

- ▶ Paola Puerta Dominguez, MA
 - ▶ Career Development Specialist, International Students/STEM Careers
- ▶ Dr. Ramazan Gungor, PhD
 - ▶ Assistant Dean, School of Graduate Studies