Writing process
Personal Statement Assignment

For this assignment, you will prepare a personal statement, similar to one you may be required to write for application to graduate school (e.g., an MBA) or fellowship. Find a particular graduate school or fellowship to which you can apply. Select one of the following questions to answer with an essay of at most 800 words:

- What is your proudest achievement, and how has it impacted you?
- What are your short-term and long-term career goals, and how will a degree from our university (or fellowship) specifically help you achieve these goals?
- Describe a challenging experience, such as a personal or professional setback.
- Describe a person you admire.
- Describe a situation where your professional ethics were challenged.
- How will other students at our university benefit from your background, experience, leadership, and/or teamwork skills?
- What do you consider to be the single most important societal problem? Why?
- Why are you a good candidate to receive this award?
- Choose a book or books that have affected you deeply and explain why.
Personal statements

- Part of required application materials for professional (med/law/business) school, graduate school (may apply for years later)

- Articulates your compatibility with a given program

- Complements other materials

- Required for fellowship applications
Similar to job interviews

**Resume-Based & Traditional**

Resume-based questions are designed to see how well you can elaborate on and provide support for the information provided on your resume.

*Often, the recruiter will begin the interview by probing specific details on your resume (fact-checking) before moving on to a different type of question.*

Traditional interview questions generally involve:

- Determining your level of interest in the job or the company.
- Ascertaining your abilities and developmental areas.
- Exploring how you might handle hypothetical situations in the workplace.
**Behavioral**

Behavioral questions stem from the premise that past performance may predict future performance.

Employers will ask you to **describe real situations you have encountered in the past** to gain an understanding of how you will respond to potential future situations.

For example:

Tell me about a time when you...

- had to solve a complex problem;
- deal with a difficult person/team member;
- complete a challenging project; or
- achieve an important goal.

*The examples you provide should be delivered as a “story” (of the nonfictional variety, of course) with an introduction, a middle, and a happy ending.*
Case

Case interview questions are commonly used within the fields of management consulting or investment banking, but they can be included in other fields as well.

You may be given information about a real business issue or problem and asked to develop a solution “on the spot” using your analytical abilities, critical thinking, and problem-solving skills.

As part of this process, you are expected to “think out loud,” ask questions that probe relevant areas, and gather pertinent information to develop your recommendation or solution.

You might also be asked brain-teaser or “market-sizing” questions.

You are not expected to come up with the correct answer to these questions. The employer wants to see the logical assumptions you will make and witness your thinking process as you figure out an estimate.

(Google likes to ask coding questions!)
Aside: more information

Job Interviews for Dummies | by Joyce Lain Kennedy
| John Wiley & Sons Inc | 2008 |
Back to admission essays...

Step 1: Understand the purpose of why you are writing.

What is the goal?
Back to admission essays...

Step 1: Understand the purpose of why you are writing.

What is the goal?

Step 2: Understand your audience.

What sort of things will the admissions committee be looking for?
The mistake people make most often is not to look at what the questions are asking.

Trying to second-guess what we are looking for is a common mistake—which we can sense.

They fail to explain errors or weaknesses in their background.

We can tell when applicants use answers to other schools' questions for our essays; we're sensitive to this.

We look for some originality because nine out of ten essays leave you with a big yawn.

Applicants make a mistake by doing a lot of speculation about what they're going to do in the future rather than telling us about what they've done in the past.

Applicants also tend to state and not evaluate. They give a recitation of their experience but no evaluation of what effect that particular experience had on them, no assessment of what certain experiences or honors meant.
Factors when writing

Audience: who will read it?

Reader will determine your "compatibility" with the school. Review universities website, mission-guidelines, and even make use of specific language.

Purpose: why are you writing it?

Reader needs to see how you have prepared, what you will contribute, and how their program achieves your goals.

Author: what makes you unique?

Hardest aspect to get right.
Your unique story

Specific qualities
- Can you highlight personal qualities (integrity, compassion, persistence) with specific examples?
- What skills (for example, leadership, communicative, analytical) do you possess?

Unique experiences
What sets you apart from other applications? (personal or family history, people or events that shaped you)

Personal preparation
- What are your career goals?
- How did you learn about this field? How did you become interested?
- Any gaps in your record that need to be addressed?
Tips for telling a “story”

Use the acronym **STAR** as a framework for your responses to behavioral interview questions (or, also when conveying any example to support a response to a traditional question).

**S** = Describe a relevant SITUATION. Be sure to provide enough background information to establish the importance of the issue at hand and your role.

**T** = Provide an overview of the TASKS involved.

**A** = Describe the specific ACTIONS you took as part of a team, or individually.

**R** = Summarize the RESULTS you achieved, quantifying whenever possible. In some cases, you may also share results in the form of “lessons learned.”

Writing as a process

http://en.wikipedia.org/wiki/Writing_process

http://owl.english.purdue.edu/owl/resource/682/01/

Classic view on writing:

1) Prewrite
2) Outline
3) Draft
4) Revise
5) Edit

“The first principal of composition is to foresee or determine the shape of what is to come and pursue that shape” Strunk & White
Writing as a process

http://en.wikipedia.org/wiki/Writing_process

http://owl.english.purdue.edu/owl/resource/682/01/

Contemporary view on writing:

1) Prewrite
2) Outline
3) Draft
4) Revise
5) Edit

"Teach Writing as a Process Not Product"

"Writing is a way to end up thinking something you couldn’t’ have started out thinking"

Donald M. Murray
Peter Elbow
Writing as a process

http://en.wikipedia.org/wiki/Writing_process
http://owl.english.purdue.edu/owl/resource/682/01/

Contemporary view on writing:

1) Prewrite
2) Outline ← crucial (my opinion)
3) Draft
4) Revise
5) Edit

"Teach Writing as a Process Not Product"

"Writing is a way to end up thinking something you couldn’t have started out thinking"
Prewriting

http://en.wikipedia.org/wiki/Prewriting

“what is the writer trying to communicate, why is it important to communicate it well and who is the audience for this communication”

1. Keep prompt in front of you
2. Choose a topic at right scope given prompt
3. Freewrite (way to log your thoughts)
4. Gather information (research)
5. Discuss information
Example pre-write

Specific qualities
- Can you highlight personal qualities (integrity, compassion, persistence) with specific examples?
- What skills (for example, leadership, communicative, analytical) do you possess?

Unique experiences
What sets you apart from other applications? (personal or family history, people or events that shaped you)

Personal preparation
- What are your career goals?
- How did you learn about this field? How did you become interested?
- Any gaps in your record that need to be addressed?
Outlines

Why are they important?

They are the “storyboard” of your paper
The College Application Process

I. Choose Desired Colleges
   A. Visit and evaluate college campuses
   B. Visit and evaluate college websites
      1. look for interesting classes
      2. note important statistics
         a. student/faculty ratio
         b. retention rate

II. Prepare Application
   A. Write Personal Statement
      1. Choose interesting topic
         a. describe an influential person in your life
            (1) favorite high school teacher
            (2) grandparent
         2. Include important personal details
            a. volunteer work
            b. participation in varsity sports
   B. Revise personal statement

III. Compile resume
   A. List relevant coursework
   B. List work experience
   C. List volunteer experience
      1. tutor at foreign language summer camp
      2. counselor for suicide prevention hotline

Example outline for an “The College Application Process”
Outlines

I use them all the time

• Aids in the process of writing
• Helps you organize your ideas
• Presents your material in a logical form
• Shows the relationships among ideas in your writing
• Constructs an ordered overview of your writing
• Defines boundaries and groups
Other types of outlines...

Full Sentence Outline

I. Man-made pollution is the primary cause of global warming.
   A. Greenhouse gas emissions are widely identified by the scientific community to be harmful.
      1. The burning of coal and fossil fuels are the primary releasers of hazardous greenhouse gases.

I often start with a topic-phrase outline, and then develop it into a sentence outline
Basic rules for constructing outlines

Parallelism - How do I accomplish this?

Each heading and subheading should preserve parallel structure. If the first heading is a verb, the second heading should be a verb. Example:

1. Choose Desired Colleges
2. Prepare Application
("Choose" and "Prepare" are both verbs. The present tense of the verb is usually the preferred form for an outline)
Basic rules for constructing outlines

Coordination - How do I accomplish this?

All the information contained in Heading 1 should have the same significance as the information contained in Heading 2. The same goes for the subheadings (which should be less significant than the headings). Example:

1. Visit and evaluate college campuses
2. Visit and evaluate college websites
   1. Note important statistics
   2. Look for interesting classes

(Campus and websites visits are equally significant. They are part of the main tasks you would need to do. Finding statistics and classes found on college websites are parts of the process involved in carrying out the main heading topics.)
Basic rules for constructing outlines

Subordination - How do I accomplish this?

The information in the headings should be more general, while the information in the subheadings should be more specific. Example:

1. Describe an influential person in your life
   1. Favorite high school teacher
   2. Grandparent

(A favorite teacher and grandparent are specific examples from the generalized category of influential people in your life.)
Basic rules for constructing outlines

Division - How do I accomplish this?

Each heading should be divided into 2 or more parts.
Example:

1. Compile resume
   1. List relevant coursework
   2. List work experience
   3. List volunteer experience
(The heading "Compile resume" is divided into 3 parts.)
Some strategies for organization

Analysis: Divide subject into parts and discuss each part separately

Cause and effect: Explain what causes a phenomena and describe its effect

Classification: Arrange subject by putting it into a group of similar items

Comparison and contrast: Compare subject to a similar one or contrast it with something different in order to make your point. (excellent strategy)

Definition: Define subject’s source and meaning.

Description: Describe features of the subject

Examples: Provide examples of phenomena that you are describing.

Process: Present subject as a series of steps and explain how it works
Recall writing process

1) Prewrite
2) Outline
3) Draft
4) Revise
5) Edit
The College Application Process

I. Choose Desired Colleges
   A. Visit and evaluate college campuses
   B. Visit and evaluate college websites
      1. look for interesting classes
      2. note important statistics
         a. student/faculty ratio
         b. retention rate

II. Prepare Application
   A. Write Personal Statement
      1. Choose interesting topic
         a. describe an influential person in your life
            (1) favorite high school teacher
            (2) grandparent
         2. Include important personal details
            a. volunteer work
            b. participation in varsity sports
   B. Revise personal statement

Use first, second (or third) level of outline for paragraph

Basic rule for paragraphs: keep 1 idea to a paragraph
Drafting paragraphs

What makes a good paragraph?
Unity, Coherence, and Development
Paragraph unity

A paragraph should not start with one topic and end with another

All sentences should support a single topic. It's often useful to explicitly write a topic sentence somewhere in paragraph.

I generally use the first sentence as a topic sentence.
Paragraph coherence

Coherence means it is easy for a reader to follow

1. Successive sentences could be constructed in parallel form.

2. Key words, or synonyms, can be repeated.

3. Make sure pronoun resolution is clear (the reader knows who “he” refers to).

4. Transition words should link sentences within a paragraph, and paragraphs together to help the reader understand how the sentences/paragraphs work together, reference one another, and build to a large point.

http://owl.english.purdue.edu/owl/resource/574/02/
Paragraph development

Paragraphs are rarely less than 3 sentences

One can develop a paragraph using the similar tools for outline organization

- Use examples and illustrations
- Cite data (facts, statistics, evidence, details, and others)
- Examine testimony (what other people say such as quotes and paraphrases)
- Use an anecdote or story
- Define terms in the paragraph
- Compare and contrast
- Evaluate causes and reasons
- Examine effects and consequences
- Analyze the topic
- Describe the topic
- Offer a chronology of an event (time segments)
It was chiefly in the eighteenth century that a very different conception of history grew up. Historians then came to believe that their task was not so much to paint a picture as to solve a problem; to explain or illustrate the successive phases of national growth, prosperity, and adversity.

The history of morals, of industry, of intellect, and of art; the changes that take place in manners or beliefs; the dominant ideas that prevailed in successive periods; the rise, fall, and modification of political constitutions; in a word, all the conditions of national well-being became the subjects of their works.

They sought rather to write a history of peoples than a history of kings.

They looked especially in history for the chain of causes and effects.

They undertook to study in the past the physiology of nations, and hoped by applying the experimental method on a large scale to deduce some lessons of real value about the conditions on which the welfare of society mainly depend.—Lecky, *The Political Value of History.*
“Signpost” paragraphs

Introduction, Conclusion, Intermediate (for long drafts)

Signposts are internal aids to assist readers; they usually consist of several sentences or a paragraph outlining what the article has covered and where the article will be going.

“Thus far, this proposal has discussed limitations and failures of the existing system. We will now discuss our proposed changes.”
Some techniques for introduction:

Definition
Question
Quotation
Analogy
Description
Example
Anecdote

For your proposal assignments, I would recommend a simple statement of what is to come.
Reverse outline

1) Prewrite
2) Outline
3) Draft
4) Reverse outline
5) Revise
6) Edit
Reverse outline

Iterate following two steps

1. Write down the topic of each paragraph.
   Use as few words as possible. When reading, these notes should work as quick references for future study. When revising your own work, these notes should tell you if each paragraph is focused and clear.

2. Write down how the paragraph topic advances the overall argument of the text.
   Again, be brief. When reading, these notes allow you to follow the logic of the essay, making it easier for you to analyze or discuss later. When revising your own work, these notes should tell you if each paragraph fits in the overall organization of your paper. You may also notice that paragraphs should be shifted after completing this step.
Revision

1) Start early, but allow time between writing and revision. (many mistakes made by speeding through proofing)

2) Read paper aloud. If text sounds awkward or confusing when read aloud, revise it.

3) Be aggressive in editing. Save only the good pieces that relate back to the main point.

4) Tighten up language & correct grammar and spelling. Eliminate unnecessary words.
And iterate

1) Prewrite
2) Outline
3) Draft
4) Revise
5) Edit for clarity

Finally, edit for conciseness
Editing for clarity

Transitions between sentences and paragraphs should sound natural and reveal relationships

Example: Overall, Management Systems International has logged increased sales in every sector, leading to a significant rise in third-quarter profits. Another important thing to note is that the corporation had expanded its international influence.

Revision: Overall, Management Systems International has logged increased sales in every sector, leading to a significant rise in third-quarter profits. These impressive profits are largely due to the corporation's expanded international influence.

You might discover you need more transitioning content/ideas

http://owl.english.purdue.edu/owl/resource/574/01/
Examples

As faculty, we have to make “research statements”
Summary of what we’ve been up to for the past X years
Useful for promotion
Prewriting

Who’s my audience?
Computer Science Department?
University Academic Personnel?
Research statement for job?
Research statement outline: building vision systems that “understand people”

December 22, 2009

1 Introduction
1. Ubiquitous media data - cell phones, digital media content, video clips
2. Understanding people is important
3. Video-based recognition

2 Past work: intelligent systems that understand people
2.1 Tracking
1. Tracking is a historic problem
2. My contribution: the first practical large-scale system
3. Core idea: estimate what and where
4. Discriminative model helpful

2.2 Activity recognition
1. Analysis by synthesis
2. Integration of motion analysis and synthesis

2.3 Work at TTI
1. Integrated pose estimation / segmentation
2. Detecting pedestrians and cars

2.4 Faces
1. Automatic face tracking and pose estimation
2. Three-dimensional mosaic-based models

2.5 Medical
1. At-home rehabilitation
2. Evaluating the hand movements of eye surgeons

3 Future directions
3.1 Learning from video
1. Learning animal models from video
2. Leveraging archival video for learning face models
3. Unsupervised learning algorithms from machine learning
4. Information-theoretic techniques from signal processing (density estimation and compression)

3.2 Task-driven models
1. Example of a traffic-light; counting cars versus issuing traffic tickets
2. Build stronger data models and rely less on prior models
3. Structured prediction

3.3 Mid-level representation
1. Need good part detectors to detect interesting poses
2. Hierarchical models - parts made of sub-parts
3. Structure learning
4. Object recognition in a video setting

3.4 Integrated models of video/image parsing
1. Low-level and high-level features jointly influence each other
2. Integrated latent-variable probabilistic model
3. Connection to attention-mechanisms from psychophysics

3.5 Summary
1. Research that can impact everyday tasks
2. Interdisciplinary attack
3. Visual tracking and object recognition
4. Human activity analysis and animation
5. Compression and clustering algorithms
6. Psychophysics and attention

Wednesday, January 23, 2013
Research statement outline

December 23, 2009

1 Introduction

1. “Systems” Ubiquitous media data - cell phones, digital media content, video clips
2. “Theory” Perceptual understanding - Gestalt psychologists, Gibson

1.1 Guiding themes

1. What makes my research unique?
2. Important to tackle challenge problems but avoid a crowded playing field
3. Motivation: understanding people
4. Focus: video
5. Machine learning: learn subtle statistical regularities of the visual world from training data rather than hard-coding
6. Computer graphics: vision is the inverse rendering problem, and so I believe there is a synergy to be gained by reuniting the two.

1.2 An (ambitious) agenda for vision

1. Representations - (structured, compositional, parsimonious)
2. Inference and learning (parsing, internet-scale datasets, structured learning, transfer learning)
3. Data (interactive labeling, evaluation, medical applications)

2 Representations

2.1 Objects

1. Image processing and machine learning: learning steerable and separable descriptors
2. Model variations in appearance due to geometry using part-based models
3. Quickly becoming a defacto baseline for recognition (citations)
4. Extension: subtler geometric variation (parts with subparts)
5. Extension: photometric variation (reflectance properties)
6. “Science” (generative) versus “engineering” (discriminative)
7. Success of discriminative models suggests that we need better models
8. Gaussian random field models that are competitive with SVMs
9. PICTURE: Part-based pascal results

2.2 Tracking

1. Tracking is a historic vision problem
2. My contribution: first practical large-scale system
3. Core idea: non-markovian model for tracking. Estimate what (object reflectance) and where (location)
4. Still state-of-the-art: hundreds of thousands of frames of unscripted video
5. PICTURE: Michelle kwan results

2.3 Activities

1. Analysis by synthesis: integrating motion synthesis algorithms and computer vision
2. Proxemics: spatial interactions between people
3. Human-object interactions (grasping and manipulation)
4. Marr-prize winning work
5. Operationalize Gibson’s functional descriptions of objects
6. Cinematographic principles of storyboards for semantic video understanding
7. PICTURE: Activity recognition
3 Inference and Learning

3.1 Video/image parsing
1. Low-level and high-level features jointly influence each other
2. Integrated latent-variable probablistic model
3. Greedy forward selection, coordinate descent optimization (e.g., Expectation Maximization), and branch and bound algorithms with underlying tree-structures amenable to dynamic programming algorithms.
4. Learn heuristics for good approximation (e.g., lp relaxations that tend to produce integer solutions)
5. Highly used code
6. PICTURES: soft parsing

3.2 Learning from video
1. Learning animal models from video
2. Leveraging archival video for learning face models
3. Multiple snapshots low-bit rate video (joint work with Simon)
4. PICTURES: animal models, faces of friends (?)

3.3 Large-scale learning
1. Internet-scale vision
2. Nearest neighbor learning - local distance functions and efficient approximations
3. Integration of online and batch convex optimization algorithms
4. Online cutting plane algorithms with convergence guarantees
5. PICTURE: Cutting plane lower-bounds

4 Data

4.1 Interactive labeling
1. Online labeling of footage - minimizing user clicks to produce detailed labels.
2. Structured active prediction
3. Manageable formulation of the vision-complete problem of total image understanding
4. HCI issues: how do people most easily label data (discrete forced choice decisions are easier to make than continous alignment)?
5. PICTURE: Mechanical Turk

4.2 Applications
1. Medical telerehabilation
2. Prenatal monitoring
3. Quantifiable measures of success
4. Informs need for represenations (e.g., human-object interactions)
5. PICTURE: Stroke survivor
Research Statement

Deva Ramanan

I study computer vision, with the long-term goal of endowing computers with the ability to “see” as people do. I find such an endeavour compelling because it straddles both engineering and science — I strive to both build systems that can process the massive amounts of visual data collected by today’s cameras, and to understand the computational underpinnings of human perception.

Research agenda: My research is unique in its focus on the motivating task of understanding people from visual data. Many applications — be it a surveillance system used to flag suspicious behavior, or a photo-search tool that allows users to find pictures of their friends, or a gesture-based interface to control a television — all require intelligent systems that understand people through images and videos. Recurring themes in my work include a focus on video analysis and the integration of machine learning and computer graphics with computer vision. Temporal image streams allow for the development of richer vision systems and are also a key component of human perception. Machine learning allows one to tune parameters to reflect the subtle statistical regularities of the visual world while computer graphics allows one to leverage visual “analysis by synthesis” techniques. My ongoing research agenda can be divided into three categories: representations, algorithms for inference and learning, and data development.

Representations

Visual representations need to be rich enough to model the complexities of the visual world but parsimonious enough to admit efficient computations. I have introduced structured representations for objects, non-markovian models for tracking, and contextual models of activities.

Invariant, structured object models: Object detection is arguably the central problem in computer vision. My post-doctoral work developed structured discriminative models that captured geometric deformations of objects [5, 11]. The resulting system (publicly available) won the widely-acknowledged PASCAL Visual Object Challenge in 2008 and 2009, and is quickly becoming the de facto standard for comparison in the field. Its impressive performance is due to a novel formulation of latent-variable support vector machines (LSVM) and the development (by other authors) of invariant oriented edge descriptors. LSVMs provide an elegant framework to examine variations in the appearance of objects due to other “nuisance” factors such as viewpoint, object reflectance, and illumination. I will explore such invariant discriminative models in the future. In recent work, I have introduced image processing models (such as separability and steerability) to regularize these descriptors, demonstrating an increase in both discriminative power and run-time efficiency [9]. Finally, a long-standing goal in computer vision is design of generative models that synthesize realistic image statistics. I am excited by ongoing work exploring markov-random field (MRF) models of image gradients, as I have found such models are competitive with highly-tuned SVMs but require far less training data.

Non-markovian tracking: My thesis introduced the first practical system for large-scale articulated tracking, based on the simple but novel ideal of learning what an object looks like while simultaneously estimating where it is over time [8]. This notion links the traditionally disparate fields of visual tracking and object detection — in short, a better object detector should make tracking easier. The corresponding probabilistic model violates classic Markovian assumptions since both past and present observations are required to learn object reflectance. My system automatically learns the reflectance properties of a person’s clothes, making it much easier to track and detect them. It has been run on hours of unscripted video, feature-length films, and yields accurate results for hundreds of thousands of frames — several orders of magnitude longer than any other approach in the literature to date.

Contextual models of activities: My work on activity analysis is inspired by generative “analysis by synthesis” algorithms from computer animation. Rather than labeling a video track with a specific action, I developed a system that synthesizes a motion, subject to constraints that it project to a tracked figure [12]. The synthesis algorithm stitches together clips from a pool of annotated motions using dynamic programming. The composed annotations capture low-level actions, but to extract richer notions such as activities and goals, I believe one must model the surrounding environment. For example, people often move to interact with nearby people and objects (e.g., shake hands, pick up a telephone). I am developing computational models of human-human and human-object proxemics derived from the relevant literature on cultural anthropology and medical taxonomies of activities of daily living (ADL). This line of work forms the basis of my recently-accepted NSF Career award. A paper describing initial results won the 2009 David Marr prize [6]. Interaction models represent a radical departure from current approaches to recognition in that they rely on classic psychological notions of object affordances - a chair is recognized not by direct visual features but rather by the function that it affords a sitting interaction. Finally, to extract more complex activities, I plan to explore storyboard representations used to lay out complex storylines — e.g., extract keyframes capturing “who, what, when, and where” of a scene. I will initially use sports footage as an testbed, with the eventual goal of storyline analysis of more general videos.

Inference and Learning

Algorithms for image parsing: Ultimately, I would like to develop representations and algorithms that completely parse images/videos into activities, objects, parts, and their spatial support masks. Such complex structured representations will likely require approximate inference strategies. In my experience, approximate algorithms that leverage tree-structures (amenable to dynamic programming) efficiently spread information throughout a model, outperforming common strategies such as belief propagation and sampling. I demonstrated the effectiveness of such techniques for the problem of parsing images of articulated bodies [9]. Recent follow-on work has extended my released code to produce state-of-the-art solutions to this difficult but important problem. I am also interested in approaches for learning good approximation strategies, such as those that learn inadmissible heuristic functions for A* search or over-generating approximations which learn model parameters that tend to produce optimal parses.
Large-scale learning: Google currently indexes more visual data than an average person will see in their lifetime. I would like to use such massive data sources for learning. I have been pursuing two avenues of research in this regard. Firstly, by augmenting classic nearest neighbor (NN) algorithms with locally-varying metrics, I have demonstrated that one can significantly improve both accuracy and run-time speed [1]. I am also interested in online algorithms for structured learning that process large (or infinite) streams of data. Batch algorithms, such as cutting-plane optimizations, are attractive because they provide convergence guarantees. Online algorithms, such as a stochastic gradient descent, are efficient but provide no guarantees in the non-asymptotic regime and can be difficult to use in practice. I have developed online variants of cutting plane algorithms that are orders of magnitude faster than existing approaches for massive (but finite) datasets and that provide convergence guarantees.

Data

Video: Hubel and Wiesel famously demonstrated the importance of motion in human perception, yet most work on recognition deals with static images. I believe there is much to be gained by looking at video. For example, motion constraints can be used to help learn structured representations. We use such a strategy to learn complex articulated models of animals from videos (shown on the right) [10]. Such object models have existed in the vision community for many decades, but my work is the only known method for learning them automatically. Video is also attractive because it allows for the collection of massive datasets of correlated images. For example, the field of face recognition would greatly benefit from large datasets of labeled face pictures. By applying tracking algorithms to collections of footage from long-running television shows, I have collected millions of images of particular individuals over a span of tens of years [7]. Our one-of-a-kind dataset includes variations in appearance due to lighting, pose, aging, weight-gain, changes in hairstyle, and other factors difficult to observe in smaller scale collections. Networks of video cameras provide another compelling data source for processing because extracted images exhibit spatiotemporal correlation. I am working with colleagues to use an instrumented “smartspace” of hundreds of cameras mounted throughout our campus to monitor campus activities over timescales of months or years [3].

Applications: I believe it is important to guide research with concrete applications as they suggest novel representations, provide quantitative scoring criteria that can be used to measure progress, and foster excitement for the field through student and industry involvement. The vision community has struggled to find meaningful datasets for activity recognition, as evidenced by the multitude of papers using scripted footage of graduate students. I am developing benchmarks based on medical surveillance footage obtained from work on tele-rehabilitation and autism analysis [2], as well proxemic labels of human spatial interactions derived from the anthropological community. Both applications have precise metrics for evaluation and also motivate the need for representations capturing interactions between humans and objects.

Personal style: I like to explicitly place the topic in bold
Editing for conciseness

http://owl.english.purdue.edu/owl/resource/572/01/

One of the biggest differences between spoken language and written text

Basic approach: interrogate every word in a sentence

Does it contribute to making your reader understand the goal of the document?
Editing for conciseness

Avoid expletive phrases (it is, there are,....)

Wordy: There are four rules that should be observed: ... (8 words)
Editing for conciseness

Avoid expletive phrases (it is, there are,....)

**Wordy:** There are four rules that should be observed: ... (8 words)

**Concise:** Four rules should be observed:... (5 words)
Editing for conciseness

Avoid overusing noun forms of verbs

**Wordy:** The function of this department is the *collection* of accounts. (10 words)
Editing for conciseness

Avoid overusing noun forms of verbs

Wordy: The function of this department is the collection of accounts. (10 words)

Concise: This department collects accounts. (4 words)
Editing for conciseness

Change phrases into single-words and adjectives

Wordy: The employee with ambition...
Editing for conciseness

Change phrases into single-words and adjectives

Wordy: The employee with ambition...

Concise: The ambitious employee...

Wordy: We read the letter we received yesterday and reviewed it thoroughly.
Editing for conciseness

Change phrases into single-words and adjectives

**Wordy:** The employee *with ambition*...

**Concise:** The ambitious employee...

**Wordy:** We read the letter we received yesterday and reviewed it thoroughly.

**Concise:** We thoroughly reviewed the letter we received yesterday.
Editing for conciseness

Change unnecessary that, who, and which clauses into adjectives

**Wordy:** The system *that is most efficient and accurate*... (8 words)
Editing for conciseness

Change unnecessary that, who, and which clauses into adjectives

**Wordy:** The system *that is most efficient and accurate*... (8 words)

**Concise:** The most efficient and accurate system... (6 words)

**Wordy:** The report, *which was released recently*... (6 words)
Editing for conciseness

Change unnecessary that, who, and which clauses into adjectives

Wordy: The system that is most efficient and accurate... (8 words)

Concise: The most efficient and accurate system... (6 words)

Wordy: The report, which was released recently... (6 words)

Concise: The recently released report... (4 words)
Wordy: Ludwig's castles are an astounding marriage of beauty and madness. By his death, he had commissioned three castles. (18 words)
Wordy: Ludwig's castles are an astounding marriage of beauty and madness. By his death, he had commissioned three castles. (18 words)

Concise: Ludwig's three castles are an astounding marriage of beauty and madness. (11 words)

Wordy: The supposed crash of a UFO in Roswell, New Mexico aroused interest in extraterrestrial life. This crash is rumored to have occurred in 1947. (24 words)
Editing for conciseness

Combine Sentences

Wordy: Ludwig's castles are an astounding marriage of beauty and madness. By his death, he had commissioned three castles. (18 words)

Concise: Ludwig's three castles are an astounding marriage of beauty and madness. (11 words)

Wordy: The supposed crash of a UFO in Roswell, New Mexico aroused interest in extraterrestrial life. This crash is rumored to have occurred in 1947. (24 words)

Concise: The supposed 1947 crash of a UFO in Roswell, New Mexico aroused interest in extraterrestrial life. (16 words)
Editing for conciseness

Eliminate redundant determiners and modifiers

Wordy: Any particular type of dessert is fine with me. (9 words)

“Filler” words to watch out for

• kind of
• sort of
• type of
• really
• basically
• for all intents and purposes
• definitely
• actually
• generally
• individual
• specific
• particular

Redundant pairs to watch out for

• various differences
• true facts
• important essentials
• future plans
• end result
• final outcome
• free gift
• past history
• unexpected surprise
• sudden crisis
• large in size
• often times
• heavy in weight
Editing for conciseness

Eliminate redundant determiners and modifiers

Wordy: Any particular type of dessert is fine with me. (9 words)

Concise: Any dessert is fine with me. (6 words)

“Filler” words to watch out for

- kind of
- sort of
- type of
- really
- basically
- for all intents and purposes
- definitely
- actually
- generally
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Redundant pairs to watch out for

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- past history
- unexpected surprise
- sudden crisis
- large in size
- often times
- heavy in weight
Editing for conciseness

Eliminate round-about expressions

- "because," "since," "why" =
  - the reason for
  - for the reason that
  - owing/due to the fact that
  - in light of the fact that
  - considering the fact that
  - on the grounds that
  - this is why
- "must," "should" =
  - it is crucial that
  - it is necessary that
  - there is a need/necessity for
  - it is important that
  - cannot be avoided
- "can" =
  - is able to
  - has the opportunity to
  - has the capacity for
  - has the ability to
- "may," "might," "could" =
  - it is possible that
  - there is a chance that
  - it could happen that
  - the possibility exists for
Conciseness checklist

http://owl.english.purdue.edu/owl/resource/572/1/