ABSTRACT GUIDELINES

Your abstract should have at least 100 words and not be longer than ONE page. It should be concise yet provide your reader with an understanding of the nature of your project/research. It should only be written after you have completed writing the main document of your project report.

In most situations, a researcher would use the abstract to determine what information a paper contains. Hence, he is likely to make a decision whether to read the paper or not based on the abstract alone.

Your abstract should contain the following:

Motivation or Problem Statement

- why the project was undertaken
- the context of the problem/issue
- the aims (what the research aims to achieve)

Method or Approach

- what was done
- a mention of the methodology/techniques used (without going into the details)
- the materials and subjects involved

Findings (or Results) and Interpretation

- a summary of the main results
- an interpretation of the results’ significance
- how the study contributes to knowledge

Conclusions

- draw some main conclusions
- implications and recommendations for future research
Below are 2 samples taken from the University of California at Berkeley:

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<td>Intracellular pathogens (agents which infect host cells), such as Mycobacterium tuberculosis and Listeria monocytogenes, cause very high mortality rates in the United States. Therefore, deciphering the mechanisms through which the pathogens cause disease is of great interest. Listeria infection of mice is a well-developed model system for studying the fundamentals of host-pathogen interactions. In vitro assays in animal cell cultures have helped show that Listeria causes illness by secreting molecules, called virulence factors, to the outside of the bacterial cell in order to affect the host organism. My work involves one such secreted protein, called p60. P60 is an antigen (an agent seen by the host immune system) implicated in regulated bacterial cell wall breakdown. The objective of this study was to examine two questions: first, is p60 essential to the viability of Listeria, as previously published? and second, is p60 a virulence factor in Listeria? To examine these questions, I contracted a Listeria strain lacking p60 (p60-). This new strain displayed no defect in viability. In fact, most standard in vitro pathogenicity assays were normal for p60-. However, when p60- was tested in a mouse (in vivo), a 1000-fold reduction in virulence was observed. This discovery suggests that p60 is indeed a key factor in the disease-causing ability of Listeria, but not essential for viability. Future studies will focus on the precise role of p60 in Listeria pathogenesis. This work increases our understanding of such diseases as tuberculosis, various food poisonings, and meningitis.</td>
<td>Laryngoscopy is a medical procedure that provides a secure airway by passing a breathing tube through the mouth and into the lungs of a patient. The ability to successfully perform laryngoscopy is highly dependent on operator skill; experienced physicians have failure rates of 0.1% or less, while less experienced paramedics may have failure rates of 10-33%, which can lead to death or brain injury. Accordingly, there is a need for improved training methods, and virtual reality technology holds promise for this application. The immediate objective of this research project is to measure the mechanics of laryngoscopy, so that an advanced training mannequin can be developed. This summer an instrumented laryngoscope has been developed which uses a 6-axis force/torque sensor and a magnetic position/orientation sensor to quantify the interactions between the laryngoscope and the patient. Experienced physicians as well as residents in training have used this device on an existing mannequin, and the force and motion trajectories have been visualized in 3D. One objective is to use comparisons between expert and novice users to identify the critical skill components necessary for patients, to identify the mechanical properties of the human anatomy that affect laryngoscopy, and thus enable the development of a realistic training simulator. In the future an advanced training mannequin will be developed whose physical properties will be based on our sensor measurements, and where virtual reality tools will be used to provide training feedback for novice users.</td>
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