

V. Write the Research Paper

1. Organization of Information

Now that you have gathered the pertinent information, it is time to organize it. You may look at the organization of your information as if you are organizing your desk drawer or closet. Similar items are grouped together for easy access. In writing your research paper, you may group your information by similar concepts. For example, if you are using the web to gather information, you may bookmark them under a concept. One of the best ways to organize information is to create an outline, kind of a skeleton that you will later fill with information. In an outline information is arranged by hierarchy and sequence. This is done by identifying **Main Topics**, **Subtopics**, detailed information under subtopics, **Conclusion** and **Bibliography**. An outline would also contain forward, preface and table of contents. An outline may look like this:

- I. *Main Topic*
 - A. **Sub-Topic**
 - 1. Detail
 - 2. Detail
 - 3. Detail
 - B. Sub-Topic
 - 1. Detail
 - 2. Detail
 - 3. Detail
 - C. *Sub-Topic*
 - 1. Detail
 - 2. Detail

For example, the book titled “ **Behavior-based Robotics; Intelligent Robots and Autonomous Agents** “ by Ronald C. Arkin has the following outline:

- Chapter I- Whence Behavior?*
 - 1.1 Toward Intelligent Robots
 - 1.2 Precursors
 - 1.3 Spectrum of Robot Control
 - 1.4 Related Issues
 - 1.5 What’s Ahead

Chapter II- Animal Behavior

- 1.1 What does Animal behavior Offer Robotics?
- 1.2 Neuroscientific Basis for Behavior
- 1.3 Psychological Basis for Behavior
- 1.4 Ethological Basis for behavior
- 1.5 Representative Example of Bio-Robots

Chapter III Robot Behavior

- 3.1 What Are Robotic behaviors?
- 3.2 Expression of Behaviors
- 3.3 Behavior Encoding
- 3.4 Assembling Behaviors

Chapter IV Behavior-Based Architectures

- 1.1 What is a Robotic Architecture?
- 1.2 An Example
- 1.3 Subsumption Architecture
- 1.4 Motor Schemas
- 1.5 Other Architectures
- 1.6 Architectural Design Issues

Conclusion

Bibliography

In this example, the title is Behavior-based Robotics; Intelligent Robots and Autonomous Agents. The author organized the information into four **Main Topics**. They are **Whence Behavior, Animal Behavior, Robot Behavior and Behavior-based Architectures**. The information relevant to the main topics are **sub-topics** and they are **Toward Intelligent Robots, Precursors, Spectrum of Robot Control, Related Issues, What's Ahead, What Does Animal Behavior Offer Robots, Neuroscientific Basis for Behavior, Psychological Basis for Behavior, etc.**

2. Citing Sources and Ethical Issues

While writing your paper, no doubt, you will need outside support for your thesis or point of view. That is, you will use quotes from other researchers. When you incorporate someone else's ideas or material in your paper, you are obligated to give credit to the original author. You can give this credit by citing other authors' works in your paper. These citations must be complete and they include books, journal or newspaper articles, Internet sources. Etc. Failure to cite the source material is unethical and it called "**plagiarism**".

You can cite your sources properly by using a variety of formats available in the following categories:

Science- *CBE* (Council of Biology Editors)

Social Sciences- APA (American Psychological Association)

Humanities- MLA (Modern Language Association)

History- Chicago

Tips

You should pick a style that fits your research topic and use it consistently.

Make sure that you provide a complete citation so that persons reading your research can locate the information you are citing.

Examples-

Footnotes:

Print materials-

Electronic resources-

Bibliographies:

Print materials *American Psychological Association (APA) Style*

Books-

The bibliographic citation for a book is generally document as follows:

Braga, N. (2002). *Robotics, mechatronics, and artificial intelligence: experimental circuit blocks for designers.*

Boston: Newnes.

(Notice that the title of the book is in Italics)

Journals-

Dario, Paola, Guglielmelli, E. and Lascki, C. (2001). Humanoids and personal robots: design and experiments. *Journal of Robotic Systems*, 18, 673-690.

(Notice that the title of the journal is in Italics)

Modern language Association (MLA)

Books-

Braga, Newton C. *Robotics, Mechatronics, and artificial intelligence: experimental circuit blocks for designers.* Boston: Newnes, 2002.

(Notice that the author's name is given in full and the publication date of the book is entered at the end of the citation. There are two spaces after

each period)

Journals- (scholarly)

Dario, Paola, Guglielmelli, E. and

Lascki, C. "Humanoids and Personal Robots: Design and

Experiments." Journal of Robotic Systems 18. 12 (December 001):
673-690.

(Notice that the title of the article is in
quotation marks, both the volume and
the issue number and the month or
season and year of the publication is
given. The month or the season and the
year of publication are in parenthesis)