Institute of Analytics

The Global Body for Analytics

Code of
Ethics & Practice

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The IoA was founded to bring support to those working in diverse environments within the field of analytics. We aim to promote the highest standards among members, by allowing them to maintain an updated skills base and to ensure that they lead in integrity. Adherence to and respect for the IoA Code of Ethics and Practice is an important part of this ambition, and is binding on all our members and students, as well as any partner members.

Part A - Why a professional Code of Ethics is needed in the field of data analytics

Introduction

Ethics are the study of the choices that we all have between right and wrong every day. In the rapidly changing world of data analytics, we know from past errors that maintaining integrity can be a challenge, and good intentions may not always be enough to tackle emerging threats to the standards of analytics work. Making the wrong choice in a work context can lead to reputational harm, fines, financial loss and even corporate failure. While we accept that mistakes with novel and emerging technologies will happen, we have collated current best practice advice to reduce the likelihood of risk, reputational loss, a breakdown in trust, or issues retaining key staff.

Ethics will vary from culture to culture, and people will differ in their views. Ethics must begin with the legislative code of the country or regions you operate in, and this will vary greatly. It is your responsibility to ensure familiarity with all relevant legislation. This will include knowledge of intellectual property law around the use of 3rd party collated data sets, data privacy laws, legal restrictions on the type of algorithms you can use, human rights laws and equal opportunity laws.

The complexities of many popular algorithms and changes in the hardware used to process data have and will continue to introduce emerging challenges to intentions to act ethically. As a professional body, we have a duty of care to ensure that the actions of our members pose the least risk of harm.

Our Code of Ethics is aligned to many of the international standards already in place within the field of Data Analytics, and addresses the IoA's basic ethical responsibilities as a body that enjoys public trust and the conduct expected of individuals associated with the institution.

We reserve the right to update our Code of Ethics should the need for a substantive change in the ethics arise.

Trust and Professional Body Membership with the IoA

Most people are comfortable with the ethics code they operate under in their personal lives. Membership of a professional body, however, requires agreement on a professional standard of ethics which is in addition to our personal code of ethics, and therefore invariant across members. Body membership is based on trust. We do not need to know, for example, the exact details of the professional ethics code of doctors or accountants. We trust that if practitioners are recognised by an awarding body, then they will act with professionalism, due care and due diligence. As an analyst and member of the IoA, to ensure that public trust is justified, it is important that members show respect for the agreed code of professional ethics in this document, which supersede personal ethical judgments.

Part B - The Five IoA Code of Ethics fundamental principles

The following outlines the underlying principles behind the Code of Ethics and conduct:

1. Accountability

Accountability refers to the presence of effective governance and oversight mechanisms and is an essential trust mechanism in data analysis. Data scientists need to be accountable to both technically trained colleagues and non-technically trained stakeholders.

2. Fairness

The IoA maintains respect for the relevant human rights of individuals and respect for the dignity of data subjects. Many data analytics processes introduce the potential for unintended discriminatory results. Members of the IoA should take steps to mitigate any harmful effects of biases in the data collection and in the model outcome.

3. Integrity

Members will be straightforward and honest in all professional and business relationships. Integrity implies not just being honest, but fair dealing.

4. Professional competence and due care

Members have a duty to maintain their professional skills and knowledge to ensure that clients or employers receive competent, professional service and that members will act diligently with data collection and storage and when carrying out data processes.

5. Transparency

Transparency means making actions, processes and data open to inspection by publishing information about data analytics processes in an understandable way. Where sensitive data or sensitive processes make open sharing problematic, steps should be considered to allow inspection of processes by trusted individuals. Where transparency is technically not an option, such as when using deep learning techniques, this should be made clear to stakeholders.

Part C - Due Process

We present a checklist of professional guidelines for our members to follow when carrying out professional analytics work. While there may be constraining factors that make it difficult to apply all of the considerations in every process, data professionals are expected to familiarise themselves with this best practice and we encourage them to share their aims with others on their team, both within and outside the field of data analytics.

1. Legal and regulatory environments

1.1 Legislative considerations

Which legislative processes are enforced in the regions where you operate?
What legislation around intellectual property and privacy is relevant to your practice?
Are you aware of recent developments in the field that you are operating in, e.g. recent judgments in case law that are distinct from earlier judgments?

1.2 Human rights

How does the design of your project advance human wellbeing?
What are the environmental implications of the project?
Can you mitigate against environmental harms?

2. Data collection and handling

2.1 Understand the unintended consequences of data collection

What could be a harm of collecting the data?
What could be a harm of not collecting the data?
Could either the misuse or poor design of the data collection process create bias?

2.2 Historical and social bias

Could the data represent a historical practice that you do not want to continue?
How will you integrate changes over time into your model, e.g. by retraining a supervised algorithm, retiring outdated data?
What proxy variables are you using, e.g. receipt of free school meals as a proxy for family income thresholds? If you are using proxy variables, have you considered all other factors that might influence that proxy?

3. Representation

3.1 Diversity

Beyond the data analysts, have you articulated your proposals and outcomes to all of the people with relevant expertise, e.g. legal expertise, customer relationship management?
How have you ensured diversity in your team? If this is not possible, how will you mitigate the current lack of diversity?
What specific groups are represented in the data?
What specific groups might be excluded from the data?
Have you explored the possibility of differential performance for minorities? i.e. Your model overfits or has poor accuracy levels for one particular subset within an otherwise accurate model.

3.2 Problem definition

Has your project been requested by someone non-technically trained with an ill-defined problem? If so, have you taken steps to define the problem and success clearly before starting?
Does everyone involved understand the processes?

3.3 Protection of stakeholders

Have you articulated all of the different sub-groups that may be affected by your project?
Have you involved stakeholders in the data collection and design stages of your project?

4. Governance

4.1 Promote effective governance

What guidelines do you follow to ensure data integrity is maintained?
How have you ensured that your project is compliant with your organization's data governance policies?

4.2 Quality control

Where do you keep records of the quality of the data that you are using?
How do you ensure that all meta information, e.g. variable names and limits, has been understood by everyone with access rights to that data set?
What are the caveats around data integrity? Have these been shared with decision makers?
What are the caveats around processing activities? Have these been shared with decision makers?

5. Contestability

5.1 Transparency

Wherever appropriate, have you made the data, process and output available for inspection outside of the data analytics team that are developing the model?

Have you clearly documented the measures that you have taken and kept records of processing activities?

Where release of the model or data is not possible, is there any metadata you could share?

Where release of the model or data is not possible, is there a trusted body that could examine the process e.g. a member of another department?

Where there are technical restrictions on transparency, e.g. deep learning processes, has this been clearly communicated to all stakeholders?

5.2 Robustness

Does your organization make use of Reproducible Analytical Pipelines?

Are you able to set up your project so that others can attempt to replicate your findings?

How do you plan to validate your claims about the algorithm?

How do you intend to test your outcomes against organizational requirements?

5.3 Ongoing monitoring

What rights do affected stakeholders have to contest the outcome of your analysis?

What are the standard operating procedures for dealing with complaints or feedback?

How will you know if your model is still relevant after a period of time?

Have you shared your experience of this process with team members / future modellers?

Part D - Code of conduct within IoA spaces

Members …

- … are obliged to conduct themselves according to the general principles of ethical conduct stated in this document;
- … are required to respect the diversity of other members, including but not limited to, their political or religious beliefs;
- … are expected to conduct themselves in a respectful manner on discussion boards or other forum opportunities on the IoA platform, and at any live events;
- … should respect the rights to freedom of expression and freedom of inquiry;
- … have the right to be judged as a data analyst professional on the basis of intellectual and professional criteria, and not on their political and religious views or other matters of personal preference;
- … should not misuse the resources of the Institute or any personal or commercial information held by it for personal gain;
- … should not harass other members.

Complaints

Complaints against a member of the Institute of Analytics should be based on the principles of fairness, confidentiality and timeliness.
Complaints on the violation of the code of practice for members should be made in writing to the IoA.

- The IoA will decide (i) whether the complaint has reasonable basis; (ii) whether the facts featuring the alleged violation constitute a breach of ethical conduct of the membership body.
- Both parties to the case will be notified in writing of the outcome of this process.
- In the event that a complaint is upheld, sanctions imposed could be: (i) warning; (ii) removal from the membership body.
- The members have a right to appeal the decision of the IoA provided that the appeal is made within a time bound period stated on the notification of the outcome of the complaints process and clear documentation stating the grounds for appeal are received.
- The IoA retains the right to determine unacceptable conduct among members.

Part E - Setting up a code of conduct within your organization

If you are an organization planning to develop your own code of conduct, you may find this Checklist for an Organizational Code of Conduct useful.