ML4H Auditing - Report Template
(Your long title)

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Abstract

Purpose: The abstract serves both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. The abstract must not include subheadings (unless expressly permitted in the journal's Instructions to Authors), equations or citations. As a guide the abstract should not exceed 200 words. Most journals do not set a hard limit however authors are advised to check the author instructions for the journal they are submitting to.
Methods: The abstract serves both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. The abstract must not include subheadings (unless expressly permitted in the journal's Instructions to Authors), equations or citations. As a guide the abstract should not exceed 200 words. Most journals do not set a hard limit however authors are advised to check the author instructions for the journal they are submitting to.
Results: The abstract serves both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. The abstract must not include subheadings (unless expressly permitted in the journal's Instructions to Authors), equations or citations. As a guide the abstract should not exceed 200 words. Most journals do not set a hard limit however authors are advised to check the author instructions for the journal they are submitting to.
Conclusion: The abstract serves both as a general introduction to the topic and as a brief, non-technical summary of the main results and their implications. The abstract must not include subheadings (unless

expressly permitted in the journal's Instructions to Authors), equations or citations. As a guide the abstract should not exceed 200 words. Most journals do not set a hard limit however authors are advised to check the author instructions for the journal they are submitting to.

Keywords: keyword1, Keyword2, Keyword3, Keyword4

This document provides a template for the second iteration of ML4H Trial Audits to help you structure your group work. If you have ideas for changes or improvements feel free to share them on slack.

1 Introduction

The Introduction section, of referenced text [1] expands on the background of the work (some overlap with the Abstract is acceptable). The introduction should not include subheadings.

2 Use Case

This section contains the description of the Use case(s) and the data you are auditing.

2.1 Data collection and preparation

This section contains information on the data that was used to train the model and that you use to test the model. It often makes sense to perform additional data quality assessments alongside the ML4H model itself. The methods and results for the data quality assessment you can include in Sections 4 and 5.

3 Planning and Scope of the Audit

In this section you can detail how you approached the audit, which process you used, what you could and could not do.

4 Audit Methods

In this section you should describe the concrete methods you used to assess the quality of the ML4H model and potentially the data you used.

4.1 Technical

4.2 Clinical

4.3 Regulatory

4.4 Ethical

5 Audit Report

This section contains a summary of the audit results for each category

Technical
Clinical
Regulatory
Ethical

Please include a version of the ITU/WHO FG-AI4H Audit Reporting Template (https://aiaudit.org/assets/pdf/standards/FGAI4H-J-048.pdf) to summarize your findings in the appendices. An example which has been filled out can be found in the appendices of http://proceedings.mlr.press/v136/oala20a/oala20a.pdf.

6 Discussion

Discussions should be brief and focused. In some disciplines use of Discussion or 'Conclusion' is interchangeable. It is not mandatory to use both. Some prefer a section 'Results and Discussion' followed by a section 'Conclusion'. Please alter according to any specific requirements.

7 Actionable Recommendations

If you have actionable recommendations for the ML4H tool developer (e.g. "try doing X to solve problem Y" you should include them here.

8 References

This section contains the bibliography information related to the paper.

Supplementary information. If your article has accompanying supplementary files please state so here.

Acknowledgments. Acknowledgments are not compulsory. Where included they should be brief. Grant or contribution numbers should go into funding under "Declarations".

Declarations

This section may contain the declarations that needs to be submitted in a standardised format. If yes, your cript must contain the following sections under the heading 'Declarations':

- Funding
- Conflict of interest/Competing interests (check journal-specific guidelines for which heading to use)
- Ethics approval
- Consent to participate
- Consent for publication
- Availability of data and materials
- Code availability
- Authors' contributions

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

Appendix A   Section title of first appendix

An appendix contains supplementary information that is not an essential part of the text itself but which may be helpful in providing a more comprehensive understanding of the research problem or it is information that is too cumbersome to be included in the body of the paper.

References

[1] I. Podlubny, Fractional Differential Equations, Academie Press, New York, 1999.

[2] R. Hilfer, Application of Fractional Calculus in Physics, World Science Publishing, Singapore, 2000.

[3] A. Nagih, G. Plateau, Fractional problems: overview of applications and solutions. Rairo-Recherche Operationnelle-Oper Press, New York, 1999.

[4] J. P. Richard, Time-delay system: an overview of some recent advances and open problems, Automatica, 39(10) (2003) 1667-1694.

[5] H. Ye, J. Gao, Y. Ding, A generalized Gronwall inequality and its application to a fractional differential equation, J. Math. Anal. Appl., 328 (2007) 1075-1081.

[6] M. Lazarevic, Stability and stabilization of fractional order time delay systems, Scientific Technical Review, 61 (2011) 31-45.

[7] Y. Li, Y. Q. Chen, I. Podlubny, Stability of fractional-order nonlinear dynamic systems: Lyapunov direct method and generalized Mittag-Leffler stability, Comp. Math. Appl., 59 (2010) 1810-1821.

Sample section containing examples

The below section contains the examples to add the equations, tables, code snippets etc.

1.1 Equations

Equations in LATEX can either be inline or on-a-line by itself ("display equations"). For inline equations use the `$...$` commands. E.g.: The equation $H\psi = E\psi$ is written via the command `$H \psi = E \psi$`.

For display equations (with auto generated equation numbers) one can use the equation or align environments:

$$\|\tilde{X}(k)\|^2 \leq \frac{\sum\limits_{i=1}^{p} \left\|\tilde{Y}_i(k)\right\|^2 + \sum\limits_{j=1}^{q} \left\|\tilde{Z}_j(k)\right\|^2}{p+q}. \tag{A1}$$

where,

$$\begin{aligned} D_\mu &= \partial_\mu - ig\frac{\lambda^a}{2}A_\mu^a \\ F_{\mu\nu}^a &= \partial_\mu A_\nu^a - \partial_\nu A_\mu^a + gf^{abc}A_\mu^b A_\nu^a \end{aligned} \tag{A2}$$

Notice the use of `\nonumber` in the align environment at the end of each line, except the last, so as not to produce equation numbers on lines where no equation numbers are required. The `\label{}` command should only be used at the last line of an align environment where `\nonumber` is not used.

$$Y_\infty = \left(\frac{m}{\text{GeV}}\right)^{-3}\left[1 + \frac{3\ln(m/\text{GeV})}{15} + \frac{\ln(c_2/5)}{15}\right] \tag{A3}$$

The class file also supports the use of `\mathbb{}`, `\mathscr{}` and `\mathcal{}` commands. As such `\mathbb{R}`, `\mathscr{R}` and `\mathcal{R}` produces $\mathbb{R}$, $\mathscr{R}$ and $\mathcal{R}$ respectively.

1.2 Cross-Referencing

Always use `\label` and `\ref` (or one of the commands described below) when cross-referencing. For example, the next section is Section 1.3 but you can also refer to it using 1.3.

1.3 Equations (contd..)

(See the amsmath documentation for further details.[1])

---

[1] Either `texdoc amsmath` or http://www.ctan.org/pkg/amsmath

Unnumbered single-lined equations should be displayed using \[and \]. For example:
$$E = mc^2$$
or you can use the `displaymath` environment:

$$E = mc^2$$

Numbered single-line equations should be displayed using the `equation` environment. For example:

$$\cos^2 \theta + \sin^2 \theta \equiv 1 \tag{A4}$$

This can be referenced using \label and \equationref. For example, A4.

Multi-lined numbered equations should be displayed using the `align` environment.[2] For example:

$$f(x) = x^2 + x \tag{A5}$$
$$f'(x) = 2x + 1 \tag{A6}$$

Unnumbered multi-lined equations can be displayed using the `align*` environment. For example:

$$f(x) = (x+1)(x-1)$$
$$= x^2 - 1$$

If you want to mix numbered with unnumbered lines use the `align` environment and suppress unwanted line numbers with \nonumber. For example:

$$y = x^2 + 3x - 2x + 1$$
$$= x^2 + x + 1 \tag{A7}$$

An equation that is too long to fit on a single line can be displayed using the `split` environment. Text can be embedded in an equation using \text or \intertext (as used in 3). See the `amsmath` documentation for further details.

1.4 Operator Names

Predefined operator names are listed in 1.4. For additional operators, either use \operatorname, for example $\mathrm{var}(X)$ or declare it with \DeclareMathOperator, for example
\DeclareMathOperator{\var}{var}
and then use this new command. If you want limits that go above and below the operator (like \sum) use the starred versions (\operatorname* or \DeclareMathOperator*).

---

[2] For reasons why you shouldn't use the obsolete `eqnarray` environment, see Lars Madsen, *Avoid eqnarray!* TUGboat 33(1):21–25, 2012.

Table A1 Predefined Operator Names (taken from amsmath documentation)

arccos	arccos	deg	deg	lg	lg	projlim	$\operatorname{proj\,lim}$	
arcsin	arcsin	det	det	lim	lim	sec	sec	
arctan	arctan	dim	dim	liminf	$\liminf$	sin	sin	
arg	arg	exp	exp	limsup	$\limsup$	sinh	sinh	
cos	cos	gcd	gcd	ln	ln	sup	sup	
cosh	cosh	hom	hom	log	log	tan	tan	
cot	cot	inf	inf	max	max	tanh	tanh	
coth	coth	injlim	$\operatorname{inj\,lim}$	min	min			
csc	c	ker	ker	Pr	Pr			
varlimsup	$\varlimsup$	varinjlim	$\varinjlim$					
varliminf	$\varliminf$	varprojlim	$\varprojlim$					

1.5 Floats

Floats, such as figures, tables and algorithms, are moving objects and are supposed to float to the nearest convenient location. Please don't force them to go in a particular place. In general it's best to use the htbp specifier and don't put the figure or table in the middle of a paragraph (that is make sure there's a paragraph break above and below the float). Floats are supposed to have a little extra space above and below them to make them stand out from the rest of the text. This extra spacing is put in automatically and shouldn't need modifying.

If your article will later be reprinted in the Challenges for Machine Learning, please be aware that the CiML books use a different paper size, so if you want to resize any images use a scale relative to the line width (\linewidth), text width (\textwidth) or text height (\textheight).

To ensure consistency, please *don't* try changing the format of the caption by doing something like:
\caption{\textit{A Sample Caption.}}
or
\caption{\em A Sample Caption.}
You can, of course, change the font for individual words or phrases, for example:
\caption{A Sample Caption With Some \emph{Emphasized Words}.}

1.6 Description Lists

The description class also provides a description-like environment and has an argument that should be the widest label in the list. Compare:

add A method that adds two variables.
differentiate A method that differentiates a function.

1.7 Tables - 1

Tables should go in the table environment. The location of the caption depends on the tablecaption setting in the document class options.

Table A2 An Example Table

Dataset	Result
Data1	0.12345
Data2	0.67890
Data3	0.54321
Data4	0.09876

If you want horizontal rules you can use the booktabs package which provides the commands \toprule, \midrule and \bottomrule. For example, see 1.7.

Table A3 A Table With Horizontal Lines

Dataset	Result
Data1	0.12345
Data2	0.67890
Data3	0.54321
Data4	0.09876

If you really want vertical lines as well, you can't use the booktabs commands as there'll be some unwanted gaps. Instead you can use LaTeX's \hline, but the rows may appear a bit cramped. You can add extra space above or below a row using \abovestrut and \belowstrut. For example, see 1.7. However, you might want to read the booktabs documentation regarding the use of vertical lines.

Table A4 A Table With Horizontal and Vertical Lines

Dataset	Result
Data1	0.12345
Data2	0.67890
Data3	0.54321
Data4	0.09876

If the table is too wide, you can adjust the inter-column spacing by changing the value of \tabcolsep. For example:
\setlength{\tabcolsep}{3pt}
If the table is very wide but not very long, you can use the sidewaystable environment defined in the rotating package (so use \usepackage{rotating}). If the table is too long to fit on a page, you can use the longtable environment defined in the longtable package (so use \usepackage{longtable}).

1.8 Figures - 1

Figures should go in the figure environment. Within this environment, use \floatconts to correctly position the caption and center the image. Use \includegraphics for external graphics files but omit the file extension. Do

not use \epsfig or \psfig. If you want to scale the image, it's better to use a fraction of the line width rather than an explicit length. For example, see figure A1.

Fig. A1 Example Image

If the figure is too wide to fit on the page, you can use the sidewaysfigure environment defined in the rotating package.

If the images are contained in a subdirectory, specify this when you include the image, for example \includegraphics{figures/mypic}.

1.9 Tables - 2

Tables can be inserted via the normal table and tabular environment. To put footnotes inside tables you should use \footnotetext[]{...} tag. The footnote appears just below the table itself (refer Tables A5 and A6). For the corresponding footnotemark use \footnotemark[...]

Table A5 Caption text

Column 1	Column 2	Column 3	Column 4
row 1	data 1	data 2	data 3
row 2	data 4	data 5^1	data 6
row 3	data 7	data 8	data 9^2

Source: This is an example of table footnote. This is an example of table footnote.

[1]Example for a first table footnote. This is an example of table footnote.

[2]Example for a second table footnote. This is an example of table footnote.

The input format for the above table is as follows:

```
\begin{table}[<placement-specifier>]
\begin{center}
\begin{minipage}{<preferred-table-width>}
\caption{<table-caption>}\label{<table-label>}%
\begin{tabular}{@{}llll@{}}
\toprule
Column 1 & Column 2 & Column 3 & Column 4\\
\midrule
```

```
row 1 & data 1 & data 2  & data 3 \\
row 2 & data 4 & data 5\footnotemark[1] & data 6 \\
row 3 & data 7 & data 8  & data 9\footnotemark[2]\\
\botrule
\end{tabular}
\footnotetext{Source: This is an example of table footnote.
This is an example of table footnote.}
\footnotetext[1]{Example for a first table footnote.
This is an example of table footnote.}
\footnotetext[2]{Example for a second table footnote.
This is an example of table footnote.}
\end{minipage}
\end{center}
\end{table}
```

Table A6 Example of a lengthy table which is set to full textwidth

| Project | Row 1[1] | | | Row 2[2] | | |
	Example	σ_{calc}	σ_{expt}	Example	σ_{calc}	σ_{expt}
Row 3	990 A	1168	1547 ± 12	780 A	1166	1239 ± 100
Row 4	500 A	961	922 ± 10	900 A	1268	1092 ± 40

Note: This is an example of table footnote. This is an example of table footnote this is an example of table footnote this is an example of table footnote this is an example of table footnote.

[1]Example for a first table footnote.

[2]Example for a second table footnote.

In case of double column layout, tables which do not fit in single column width should be set to full text width. For this, you need to use \begin{table*} ... \end{table*} instead of \begin{table} ... \end{table} environment. Lengthy tables which do not fit in textwidth should be set as rotated table. For this, you need to use \begin{sidewaystable} ... \end{sidewaystable} instead of \begin{table*} ... \end{table*} environment. This environment puts tables rotated to single column width. For tables rotated to double column width, use \begin{sidewaystable*} ... \end{sidewaystable*}.

1.10 Figures - 2

As per the LaTeX standards you need to use eps images for LaTeX compilation and pdf/jpg/png images for PDFLaTeX compilation. This is one of the major difference between LaTeX and PDFLaTeX. Each image should be from a single input .eps/vector image file. Avoid using subfigures. The command for inserting images for LaTeX and PDFLaTeX can be generalized. The package used

Table A7 Tables which are too long to fit, should be written using the "sidewaystable" environment as shown here

Project	Row 1[1]				Row^2			
	Example	σ_{calc}	σ_{expt}		Example	σ_{calc}	σ_{expt}	
Row 3	990 A	1168	1547 ± 12		780 A	1166	1239 ± 100	
Row 4	500 A	961	922 ± 10		900 A	1268	1092 ± 40	
Row 5	990 A	1168	1547 ± 12		780 A	1166	1239 ± 100	
Row 6	500 A	961	922 ± 10		900 A	1268	1092 ± 40	

Note: This is an example of table footnote this is an example of table footnote this is an example of table footnote this is an example of table footnote this is an example of table footnote.

[1]This is an example of table footnote.

to insert images in `LaTeX/PDFLaTeX` is the graphicx package. Figures can be inserted via the normal figure environment as shown in the below example:

```
\begin{figure}[<placement-specifier>]
\centering
\includegraphics{<eps-file>}
\caption{<figure-caption>}\label{<figure-label>}
\end{figure}
```

Fig. A2 This is a widefig. This is an example of long caption this is an example of long caption this is an example of long caption this is an example of long caption

In case of double column layout, the above format puts figure captions/images to single column width. To get spanned images, we need to provide `\begin{figure*} ... \end{figure*}`.

For sample purpose, we have included the width of images in the optional argument of `\includegraphics` tag. Please ignore this.

1.11 Algorithms

Enumerated textual algorithms can be displayed using the `algorithm` environment. Within this environment, use `\caption` to set the caption and you can use an `enumerate` or nested `enumerate` environments. For example, see Algorithm 1. Note that algorithms float like figures and tables.

Algorithm 1 The Gauss-Seidel Algorithm

---

1. For $k = 1$ to maximum number of iterations
   (a) For $i = 1$ to n
      (i) $x_i^{(k)} = \frac{b_i - \sum_{j=1}^{i-1} a_{ij} x_j^{(k)} - \sum_{j=i+1}^{n} a_{ij} x_j^{(k-1)}}{a_{ii}}$
      (ii) If $\|\vec{x}^{(k)} - \vec{x}^{(k-1)} < \epsilon\|$, where ϵ is a specified stopping criteria, stop.

If you'd rather have the same numbering throughout the algorithm but still want the convenient indentation of nested `enumerate` environments. For example, see Algorithm 2.

1.12 Program codes and Listings

Packages `algorithm`, `algorithmicx` and `algpseudocode` are used for setting algorithms in LaTeX using the format:

Algorithm 2 Moore's Shortest Path

Given a connected graph G, where the length of each edge is 1:

1. Set the label of vertex s to 0
2. Set $i = 0$
   (a) Locate all unlabelled vertices adjacent to a vertex labelled i and label them $i + 1$
   (b) If vertex t has been labelled,
       the shortest path can be found by backtracking, and the length is given by the label of t.
       otherwise
       increment i and return to step 2(a)

```
\begin{algorithm}
\caption{<alg-caption>}\label{<alg-label>}
\begin{algorithmic}[1]
. . .
\end{algorithmic}
\end{algorithm}
```

You may refer above listed package documentations for more details before setting `algorithm` environment. For program codes, the "program" package is required and the command to be used is `\begin{program}` ... `\end{program}`. A fast exponentiation procedure:

```
begin
   for i := 1 to 10 step 1 do
      expt(2, i);
      newline() od                Comments will be set flush to the right margin
where
proc expt(x, n) ≡
   z := 1;
   do if n = 0 then exit fi;
      do if odd(n) then exit fi;
         comment: This is a comment statement;
         n := n/2; x := x * x od;
      {n > 0};
      n := n − 1; z := z * x od;
   print(z).
end
```

Similarly, for `listings`, use the `listings` package. `\begin{lstlisting}` ... `\end{lstlisting}` is used to set environments similar to `verbatim` environment. Refer to the `lstlisting` package documentation for more details.

Algorithm 3 Calculate $y = x^n$

Require: $n \geq 0 \vee x \neq 0$
Ensure: $y = x^n$
1: $y \Leftarrow 1$
2: **if** $n < 0$ **then**
3:      $X \Leftarrow 1/x$
4:      $N \Leftarrow -n$
5: **else**
6:      $X \Leftarrow x$
7:      $N \Leftarrow n$
8: **end if**
9: **while** $N \neq 0$ **do**
10:      **if** N is even **then**
11:          $X \Leftarrow X \times X$
12:          $N \Leftarrow N/2$
13:      **else**[N is odd]
14:          $y \Leftarrow y \times X$
15:          $N \Leftarrow N - 1$
16:      **end if**
17: **end while**

```
for  i:=maxint  to  0  do
begin
{  do  nothing  }
end ;
Write ( 'Case insensitive ' );
Write ( 'Pascal keywords. ' );
```

1.13 Cross referencing

Environments such as figure, table, equation and align can have a label declared via the `\label{#label}` command. For figures and table environments use the `\label{}` command inside or just below the `\caption{}` command. You can then use the `\ref{#label}` command to cross-reference them. As an example, consider the label declared for Figure A2 which is `\label{fig1}`. To cross-reference it, use the command `Figure \ref{fig1}`, for which it comes up as "Figure A2".

To reference line numbers in an algorithm, consider the label declared for the line number 2 of Algorithm 3 is `\label{algln2}`. To cross-reference it, use the command `\ref{algln2}` for which it comes up as line 2 of Algorithm 3.

1.14 Details on reference citations

Standard LATEX permits only numerical citations. To support both numerical and author-year citations this template uses `natbib` LATEX package. For style guidance please refer to the template user manual.

Here is an example for `\cite{...}`: [1]. Another example for `\citep{...}`: [2]. For author-year citation mode, `\cite{...}` prints Jones et al. (1990) and `\citep{...}` prints (Jones et al., 1990).

All cited bib entries are printed at the end of this article: [3], [4], [5], [6] and [7].

1.15 Examples for theorem like environments

For theorem like environments, we require `amsthm` package. There are three types of predefined theorem styles exists—`thmstyleone`, `thmstyletwo` and `thmstylethree`

`thmstyleone`	Numbered, theorem head in bold font and theorem text in italic style
`thmstyletwo`	Numbered, theorem head in roman font and theorem text in italic style
`thmstylethree`	Numbered, theorem head in bold font and theorem text in roman style

For mathematics journals, theorem styles can be included as shown in the following examples:

Theorem 1 (Theorem subhead) *Example theorem text. Example theorem text.*

Sample body text. Sample body text.

Proposition 2 *Example proposition text. Example proposition text.*

Sample body text. Sample body text.

Example 1 Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem.

Sample body text. Sample body text.

Remark 1 Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam

ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem.

Sample body text. Sample body text.

Definition 1 (Definition sub head) Example definition text. Example definition text.

Additionally a predefined "proof" environment is available: `\begin{proof}` `... \end{proof}`. This prints a "Proof" head in italic font style and the "body text" in roman font style with an open square at the end of each proof environment.

Proof Example for proof text. Example for proof text.   □

Sample body text. Sample body text.

Proof of Theorem 1 Example for proof text. Example for proof text.   □

For a quote environment, use `\begin{quote}...\end{quote}`

> Quoted text example. Aliquam porttitor quam a lacus. Praesent vel arcu ut tortor cursus volutpat. In vitae pede quis diam bibendum placerat. Fusce elementum convallis neque. Sed dolor orci, scelerisque ac, dapibus nec, ultricies ut, mi. Duis nec dui quis leo sagittis commodo.

Sample body text. Sample body text. (refer Figure A2). Sample body text. Sample body text. Sample body text (refer Table A7).

The following theorem-like environments are predefined by the `theorem`, `example`, `lemma`, `proposition`, `remark`, `corollary`, `definition`, `conjecture` and `axiom`. You can use the `proof` environment to display the proof if need be, as in Theorem 3.

Theorem 3 (Eigenvalue Powers) *If λ is an eigenvalue of $\vec{B}$ with eigenvector $\vec{\xi}$, then λ^n is an eigenvalue of $\vec{B}^n$ with eigenvector $\vec{\xi}$.*

Proof Let λ be an eigenvalue of $\vec{B}$ with eigenvector ξ, then

$$\vec{B}\vec{\xi} = \lambda\vec{\xi}$$

premultiply by $\vec{B}$:

$$\vec{B}\vec{B}\vec{\xi} = \vec{B}\lambda\vec{\xi}$$
$$\Rightarrow \vec{B}^2\vec{\xi} = \lambda\vec{B}\vec{\xi}$$
$$= \lambda\lambda\vec{\xi} \quad \text{since } \vec{B}\vec{\xi} = \lambda\vec{\xi}$$
$$= \lambda^2\vec{\xi}$$

Therefore true for $n = 2$. Now assume true for $n = k$:

$$\vec{B}^k\vec{\xi} = \lambda^k\vec{\xi}$$

premultiply by $\vec{B}$:

$$\vec{B}\vec{B}^k\vec{\xi} = \vec{B}\lambda^k\vec{\xi}$$
$$\Rightarrow \vec{B}^{k+1}\vec{\xi} = \lambda^k\vec{B}\vec{\xi}$$
$$= \lambda^k\lambda\vec{\xi} \qquad \text{since } \vec{B}\vec{\xi} = \lambda\vec{\xi}$$
$$= \lambda^{k+1}\vec{\xi}$$

Therefore true for $n = k + 1$. Therefore, by induction, true for all n. $\qquad\qquad\square$

Remark 2 (A Sample Remark) This is a remark.