

```
In [ ]: import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import seaborn as sns
```

```
In [ ]: df = pd.read_csv('Survey2020Responses_DupRemoved.csv')
```

```
In [ ]: punctdict = {" ":"_", "?":"", "(":"" , ")":"" , "[":"", "]":"", "/" :
"_" , ", ":"", "<":"lessthan" , "'':"" , ".":""}
for col in df.columns:
    entryseries = df[col].astype("str")
    entrylist = list(entryseries)
    entrylist.sort()
    while "nan" in entrylist:
        entrylist.remove("nan")
    entryseries = pd.Series(entrylist)
    filename = col
    for key in punctdict.keys():
        filename = filename.replace(key,punctdict[key])
    filename+="".csv"
    entryseries.to_csv(filename,index=False)
```

```
In [ ]: df['Trainee']=df.eval("`Which of the following roles best describes you?`
` in ['Undergraduate/Graduate student','Postdoctoral fellow']")

df['Imaging']=df.eval("`How would you describe your work?` <3")
df['Analyst']=df.eval("`How would you describe your work?` >5")
df['Balanced']=df.eval("`How would you describe your work?`in [3,4,5]")
```

```
In [ ]: df['Low']=df.eval("`How would you rate your comfort in developing new co
mputational skills?` <3")
df['High']=df.eval("`How would you rate your comfort in developing new c
omputational skills?` >5")
df['Medium']=df.eval("`How would you rate your comfort in developing new
computational skills?`in [3,4,5]")
```

```
In [ ]: sum(df['Trainee'])
```

```
In [ ]: sum(df['Imaging']),sum(df['Balanced']),sum(df['Analyst'])
```

```
In [ ]: sum(df['Low']),sum(df['Medium']),sum(df['High'])
```

```
In [ ]: df['WorkerType']=np.zeros(484)
df.loc[df['Imaging'] == True, 'WorkerType'] = 'Imaging'
df.loc[df['Analyst'] == True, 'WorkerType'] = 'Analyst'
df.loc[df['Balanced'] == True, 'WorkerType'] = 'Balanced'
```

```
In [ ]: df['ComfortLevel']=np.zeros(484)
df.loc[df['Low'] == True, 'ComfortLevel'] = 'Low Comfort'
df.loc[df['Medium'] == True, 'ComfortLevel'] = 'Medium Comfort'
df.loc[df['High'] == True, 'ComfortLevel'] = 'High Comfort'
```

```
In [ ]: a4_dims = (11, 8.5)
sns.set(font_scale = 1.8)
palette = sns.color_palette(["#40B0A6", "#E1BE6A"])
sns.set_style("whitegrid")
g = sns.catplot(data=df, x='How would you rate your computational skill
s?',
                y='How would you rate your comfort in developing
new computational skills?',
                split=True, inner="quartile",
                hue='Trainee', hue_order=[True, False],
                kind="violin", height=11, palette=palette)

handles, lables = g.fig.get_axes()[0].get_legend_handles_labels()
g.fig.get_axes()[0].legend(handles, ["Trainee", "Non-Trainee"])

g.set_axis_labels("Computational skills", "Comfort in developing new comp
utational skills", size=30)
#plt.savefig("TraineeCompSkill_NewLabel_C.png", bbox_inches='tight', dpi=300)
```

```
In [ ]: a4_dims = (11, 8.5)
sns.set(font_scale = 2)

sns.set_style("whitegrid")
g = sns.catplot(data=df, kind='count', col="Trainee", col_order=[True, False],
                x='WorkerType', order=['Imaging', 'Balanced', 'Analyst'], legend=True, palette="Set2")

#plt.savefig("TraineeWorkerType_C.png", bbox_inches='tight', dpi=300)
```

```
In [ ]: df['Student']=df.eval("`Which of the following roles best describes you?` == 'Undergraduate/Graduate student'")
df['Postdoc']=df.eval("`Which of the following roles best describes you?` == 'Postdoctoral fellow'")
df['PI']=df.eval("`Which of the following roles best describes you?` == 'Principal investigator'")
df['Image analyst']=df.eval("`Which of the following roles best describes you?` == 'Image analyst'")
df['Facility director']=df.eval("`Which of the following roles best describes you?` == 'Facility director'")
df['Facility staff']=df.eval("`Which of the following roles best describes you?` == 'Facility staff'")
df['Clinician']=df.eval("`Which of the following roles best describes you?` == 'Clinician'")
df['OtherRoles']=df.eval("`Which of the following roles best describes you?` not in ['Undergraduate/Graduate student','Postdoctoral fellow','Principal investigator','Image analyst','Facility director','Facility staff','Clinician']")
```

```
In [ ]: sum(df['Student']),sum(df['Postdoc']),sum(df['PI']),sum(df['Image analyst']),sum(df['Facility director']),sum(df['Facility staff']),sum(df['Clinician']),sum(df['OtherRoles'])
```

```
In [ ]: df['Roles']=np.zeros(484)
df.loc[df['Student'] == True, 'Roles'] = 'Student'
df.loc[df['Postdoc'] == True, 'Roles'] = 'Postdoc'
df.loc[df['PI'] == True, 'Roles'] = 'PI'
df.loc[df['Image analyst'] == True, 'Roles'] = 'Image analyst'
df.loc[df['Facility director'] == True, 'Roles'] = 'Facility director'
df.loc[df['Facility staff'] == True, 'Roles'] = 'Facility staff'
df.loc[df['Clinician'] == True, 'Roles'] = 'Clinician'
df.loc[df['OtherRoles'] == True, 'Roles'] = 'OtherRoles'
```

```
In [ ]: a4_dims = (11, 8.5)
plt.figure(figsize=a4_dims)
sns.set(font_scale = 1.6)
sns.set_style("whitegrid")
chart = sns.catplot(data=df, kind='count', y='Roles',palette="Paired")
chart.set_xlabels("Counts", fontsize = 20)
chart.set_ylabels("Roles", fontsize = 20)
plt.savefig("RolesCounts_New.png",bbox_inches='tight',dpi=300)
```

```
In [ ]: columns = list(df.columns)
interest_level = [x for x in columns if "How interested are you in learning more about the following topics?" in x]
separated = df.melt(value_vars=interest_level, var_name='TopicofInterest', value_name='InterestLevel')

separated['InterestTopic'] = separated['TopicofInterest'].replace({interest_level[0]: 'Image analysis theory',
                                                                    interest_level[1]: 'General image analysis practices',
                                                                    interest_level[2]: 'Image analysis practices particular to my field',
                                                                    interest_level[3]: 'Learning to use a particular software tool',
                                                                    interest_level[4]: 'Deep learning as applied to image analysis'})
```

```
In [ ]: palette = sns.color_palette(["#99d8c7", "#4cbb9d", "#009e73", "#004f39"])
sns.set_style("whitegrid")

g = sns.catplot(data=separated, kind='count',
                y='InterestTopic',
                order=['Image analysis theory', 'General image analysis practices', 'Image analysis practices particular to my field', 'Learning to use a particular software tool', 'Deep learning as applied to image analysis'],
                hue='InterestLevel', hue_order=['Not at all interested', 'A little interested', 'Moderately interested', 'Very interested'], legend=True, palette=palette)

g.set_xlabels("Counts", fontsize = 20)
g.set_ylabels("Topic of Interest", fontsize = 20)
g.fig.suptitle("How interested are you in learning more about the following topics?", horizontalalignment='right')
#plt.savefig("TopicofInterest_Learning_New3.png", bbox_inches='tight', dpi=300)
```

```

In [ ]: columns = list(df.columns)
interest_form = [x for x in columns if "For any topic(s) you're interest
ed in, how interested would you be in learning about them in the followi
ng ways?" in x]
melted = df.melt(id_vars=['How would you rate your computational skill
s?', 'WorkerType', 'Trainee'], value_vars=interest_form,
                 var_name='TypeOfInterest', value_name='InterestLevel')
melted['Type'] = melted['TypeOfInterest'].replace({interest_form[0]: 'Be
stPracticesArticle',
                                                    interest_form[1]: 'Wr
ittenTutorial',
                                                    interest_form[2]: 'Vi
deoTutorial',
                                                    interest_form[3]: 'In
teractiveWebinar',
                                                    interest_form[4]: 'Of
ficeHours',
                                                    interest_form[5]: '1D
ayWorkshop',
                                                    interest_form[6]: 'Mu
ltiDayWorkshop'})
#melted.head()

```

```

In [ ]: sns.set(font_scale=1.8)
palette = sns.color_palette(["#99d8c7", "#4cbb9d", "#009e73", "#004f39"])
sns.set_style("whitegrid")
g = sns.catplot(data=melted, kind='count',
                x='Type',
                order=['BestPracticesArticle', 'WrittenTutorial', 'VideoTu
torial', 'InteractiveWebinar', 'OfficeHours', '1DayWorkshop', 'MultiDayWorks
hop'],
                hue='InterestLevel', hue_order=['Not at all interested',
'A little interested', 'Moderately interested', 'Very interested'], aspect=
2.5, palette=palette)

ax = g.facet_axis(0,0)
for p in ax.patches:
    ax.text(p.get_x() - 0.001,
            p.get_height() * 1.03,
            '{0:.0f}'.format(p.get_height()),
            color='black',
            rotation='horizontal',
            size='x-small')

g.set_xticklabels(["Best practices", "Written tutorial", "Video tutoria
l", "Webinar", "Office hours", "1Day workshop", "Multi-day workshop"], rotati
on=45, horizontalalignment='right', fontsize=20)
g.set_ylabels("Counts", fontsize = 20)
g.fig.suptitle("For any topic(s) you're interested in, how interested wo
uld you be in learning about them in the following ways?", y=1.02, fonts
ize=24)
#plt.savefig("LearningMethos_Interest_New2.png", bbox_inches='tight', dpi=
300)

```

```

In [ ]: sns.set(font_scale=1.8)
palette = sns.color_palette(["#40B0A6", "#E1BE6A"])
sns.set_style("whitegrid")
g = sns.catplot(data=melted, kind='count', col='Type', col_wrap=4,
                x='InterestLevel',
                order=['Not at all interested', 'A little interested', 'Moderately interested', 'Very interested'],
                hue='Trainee', hue_order=[True, False], height=6, palette=palette)

g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])
for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.01,
                p.get_height() * 1.02,
                '{0:.0f}'.format(p.get_height()), # for one decimal '{0:.1f}'
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0, 0)

plt.legend(loc='upper left', labels=["Trainee", "Non-Trainee"])
#plt.savefig("TraineeInterestinLM_C.png", bbox_inches='tight', dpi=300)

```

```

In [ ]: interest_list = [x for x in columns if "For any topic(s) you're interested in, how interested would you be in learning about them in the following ways? " in x]
melted = df.melt(id_vars=['How would you rate your computational skills?', 'WorkerType', 'Trainee'], value_vars=interest_form,
                 var_name='TypeOfInterest', value_name='InterestLevel')
melted['Type'] = melted['TypeOfInterest'].replace({interest_form[0]: 'BestPracticesArticle',
                                                    interest_form[1]: 'WrittenTutorial',
                                                    interest_form[2]: 'VideoTutorial',
                                                    interest_form[3]: 'InteractiveWebinar',
                                                    interest_form[4]: 'OfflineHours',
                                                    interest_form[5]: '1DayWorkshop',
                                                    interest_form[6]: 'MultiDayWorkshop'})
#melted.head()

```

```
In [ ]: df['MicroscopeComSoftware']=df.eval("`What image analysis tools do you use the most?` == 'Commercial software that comes with my microscope (ie Columbus, Elements, Softworx, etc)')")
df['OtherCommercialSoftware']=df.eval("`What image analysis tools do you use the most?` == 'Other commercial software (Imaris, Volocity, etc)')")
df['OpenSourcePoint&Click']=df.eval("`What image analysis tools do you use the most?` == 'Open source point-and-click software (ImageJ, FIJI, Icy, CellProfiler, etc)')")
df['CompLibrary&Scripts']=df.eval("`What image analysis tools do you use the most?` == 'Computational libraries and scripts (scikit-image, MATLAB, etc)')")
df['None']=df.eval("`What image analysis tools do you use the most?` == 'None'")
df['OtherSoftware']=df.eval("`What image analysis tools do you use the most?` not in ['Commercial software that comes with my microscope (ie Columbus, Elements, Softworx, etc)', 'Other commercial software (Imaris, Volocity, etc)', 'Open source point-and-click software (ImageJ, FIJI, Icy, CellProfiler, etc)', 'Computational libraries and scripts (scikit-image, MATLAB, etc)']")
```

```
In [ ]: sum(df['MicroscopeComSoftware']),sum(df['OtherCommercialSoftware']),sum(df['OpenSourcePoint&Click']),sum(df['CompLibrary&Scripts']),sum(df['None']),sum(df['OtherSoftware'])
```

```
In [ ]: df['Most used software']=np.zeros(484)
df.loc[df['MicroscopeComSoftware'] == True, 'Most used software'] = 'Microscope commercial software'
df.loc[df['OtherCommercialSoftware'] == True, 'Most used software'] = 'Other commercial software'
df.loc[df['OpenSourcePoint&Click'] == True, 'Most used software'] = 'Open-source point & click'
df.loc[df['CompLibrary&Scripts'] == True, 'Most used software'] = 'Computational library & scripts'
df.loc[df['None'] == True, 'Most used software'] = 'None'
df.loc[df['OtherSoftware'] == True, 'Most used software'] = 'Other software'
```

```
In [ ]: sns.set_style("whitegrid")
chartSoft = sns.countplot(data=df, y='Most used software', order=['Open-source point & click', 'Computational library & scripts', 'Microscope commercial software', 'Other commercial software', 'Other software'])
plt.savefig("MostUsedSoftware_Updated.png",bbox_inches='tight',dpi=300)
#chartSoft.set_xticklabels(rotation=-15)
```

```
In [ ]: print(df.groupby('Imaging').mean()['How would you rate your computational skills?'][True],
             df.groupby('Imaging').std()['How would you rate your computational skills?'][True],
             df.groupby('Balanced').mean()['How would you rate your computational skills?'][True],
             df.groupby('Balanced').std()['How would you rate your computational skills?'][True],
             df.groupby('Analyst').mean()['How would you rate your computational skills?'][True],
             df.groupby('Analyst').std()['How would you rate your computational skills?'][True])
```

```
In [ ]: print(df.groupby('Imaging').sum)
```

```
In [ ]: df['How would you rate your comfort in developing new computational skills?'].mean()
```



```

In [ ]: df['LowSkills'] = df.eval("`How would you rate your computational skill
s?` < 3")
df['MedSkills'] = df.eval("`How would you rate your computational skill
s?` in [3,4,5]")
df['HighSkills'] = df.eval("`How would you rate your computational skill
s?` > 5")

df['SkillLevel'] = [0]*df.shape[0]
df.loc[df['LowSkills'] == True, 'SkillLevel'] = 'Low'
df.loc[df['MedSkills'] == True, 'SkillLevel'] = 'Medium'
df.loc[df['HighSkills'] == True, 'SkillLevel'] = 'High'

columns = list(df.columns)
interest_form = [x for x in columns if "For any topic(s) you're interest
ed in, how interested would you be in learning about them in the followi
ng ways? " in x]
melted = df.melt(id_vars=['SkillLevel'], value_vars=interest_form,
                 var_name='TypeOfInterest', value_name='InterestLevel')
melted['Type'] = melted['TypeOfInterest'].replace({interest_form[0]: 'Be
stPracticesArticle',
                                                    interest_form[1]: 'Wr
ittenTutorial',
                                                    interest_form[2]: 'Vi
deoTutorial',
                                                    interest_form[3]: 'In
teractiveWebinar',
                                                    interest_form[4]: 'Of
ficeHours',
                                                    interest_form[5]: '1D
ayWorkshop',
                                                    interest_form[6]: 'Mu
ltiDayWorkshop'})

sns.set(font_scale=1.8)
palette = sns.color_palette(["#66aad0", "#0072b2", "#00446a"])
sns.set_style("whitegrid")
g = sns.catplot(data=melted, kind='count', col='Type', col_wrap=4,
               x='InterestLevel',
               order=['Not at all interested', 'A little interested', 'Mo
derately interested', 'Very interested'],
               hue='SkillLevel', hue_order=['Low', 'Medium', 'High'], heigh
t=6, palette=palette)
g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])

for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.01,
                p.get_height() * 1.02,
                '{0:.0f}'.format(p.get_height()), # for one decimal '{0:.1
f}'.format(p.get_height()),
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0,0)

```

```
g.set_ylabel("Counts", fontsize = 20)
#plt.savefig("InterestLearning_CompSkill_C.png",bbox_inches='tight',dpi=300)
```

```
In [ ]: columns = list(df.columns)
interest_form = [x for x in columns if "For any topic(s) you're interested in, how interested would you be in learning about them in the following ways? " in x]
melted_compcomfort = df.melt(id_vars=['ComfortLevel'], value_vars=interest_form,
                             var_name='TypeOfInterest', value_name='InterestLevel')
melted_compcomfort['Type'] = melted_compcomfort['TypeOfInterest'].replace({interest_form[0]: 'BestPracticesArticle',
                                                                    interest_form[1]: 'WrittenTutorial',
                                                                    interest_form[2]: 'VideoTutorial',
                                                                    interest_form[3]: 'InteractiveWebinar',
                                                                    interest_form[4]: 'OfflineHours',
                                                                    interest_form[5]: '1DayWorkshop',
                                                                    interest_form[6]: 'MultiDayWorkshop'})
#melted_compcomfort.head()
```

```

In [ ]: normalized_compcomfort = melted_compcomfort.groupby(['Type', 'ComfortLevel'])['InterestLevel'].value_counts(normalize=True).reset_index(name='Percent')

normalized_compcomfort.Percent = normalized_compcomfort.Percent * 100
palette = sns.color_palette(["#66aad0", "#0072b2", "#00446a"])
g = sns.catplot(data=normalized_compcomfort, col='Type', x='InterestLevel', y='Percent', kind='bar',
                col_order=['BestPracticesArticle', 'WrittenTutorial', 'VideoTutorial', 'InteractiveWebinar', 'OfficeHours', '1DayWorkshop', 'MultiDayWorkshop'],
                order=['Not at all interested', 'A little interested', 'Moderately interested', 'Very interested'],
                hue='ComfortLevel', hue_order=['Low Comfort', 'Medium Comfort', 'High Comfort'], col_wrap=4, height=6, palette=palette)
g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])

for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.01,
                p.get_height() * 1.02,
                '{0:.0f}'.format(p.get_height()), # for one decimal '{0:.1f}'
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0,0)

plt.savefig("Normalized_CompComfort_InterestLearningMaterial_C.png", bbox_inches='tight', dpi=300)

```

```

In [ ]: columns = list(df.columns)
interest_form = [x for x in columns if "For any topic(s) you're interested in, how interested would you be in learning about them in the following ways?" in x]
melted_all = df.melt(id_vars=['How would you rate your computational skills?', 'WorkerType', 'Trainee'], value_vars=interest_form,
                    var_name='TypeOfInterest', value_name='InterestLevel')
melted_all['Type'] = melted_all['TypeOfInterest'].replace({interest_form[0]: 'BestPracticesArticle',
                                                            interest_form[1]: 'WrittenTutorial',
                                                            interest_form[2]: 'VideoTutorial',
                                                            interest_form[3]: 'InteractiveWebinar',
                                                            interest_form[4]: 'OfficeHours',
                                                            interest_form[5]: '1DayWorkshop',
                                                            interest_form[6]: 'MultiDayWorkshop'})
#melted_all.head()

```

```

In [ ]: palette = sns.color_palette(["#40B0A6", "#E1BE6A"])
normalized_trainee = melted_all.groupby(['Type', 'Trainee'])['InterestLevel'].value_counts(normalize=True).reset_index(name='Percent')

normalized_trainee.Percent = normalized_trainee.Percent * 100

g = sns.catplot(data=normalized_trainee, col='Type', x='InterestLevel', y='Percent', kind='bar',
                col_order=['BestPracticesArticle', 'WrittenTutorial', 'VideoTutorial', 'InteractiveWebinar', 'OfficeHours', '1DayWorkshop', 'MultiDayWorkshop'],
                order=['Not at all interested', 'A little interested', 'Moderately interested', 'Very interested'],
                hue='Trainee', hue_order=[True, False], col_wrap=4, height=6, palette=palette)
g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])

for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.01,
                p.get_height() * 1.02,
                '{0:.0f}'.format(p.get_height()), # for one decimal '{0:.1f}'
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0, 0)

handles, labels = g.fig.get_axes()[0].get_legend_handles_labels()
g.fig.get_axes()[0].legend(handles, ["Trainee", "Non-Trainee"], loc='upper left')

#plt.legend(loc='upper left', labels=["Trainee", "Non-Trainee"])
#plt.savefig("Normalized_Trainee_InterestLearningMaterial_C.png", bbox_inches='tight', dpi=300)

```

```

In [ ]: sns.set(font_scale=1.8)
sns.set_style("whitegrid")
#palette = sns.color_palette(["#2D5A7A", "#eaae7f", "#3CB371"])
normalized_worker = melted_all.groupby(['Type', 'WorkerType'])['InterestLevel'].value_counts(normalize=True).reset_index(name='Percent')

normalized_worker.Percent = normalized_worker.Percent * 100

g = sns.catplot(data=normalized_worker, col='Type', x='InterestLevel', y='Percent', kind='bar',
                col_order=['BestPracticesArticle', 'WrittenTutorial', 'VideoTutorial', 'InteractiveWebinar', 'OfficeHours', '1DayWorkshop', 'MultiDayWorkshop'],
                order=['Not at all interested', 'A little interested', 'Moderately interested', 'Very interested'],
                hue='WorkerType', hue_order=['Imaging', 'Balanced', 'Analysis'], col_wrap=4, height=6, palette="Set2")
g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])

for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.01,
                p.get_height() * 1.02,
                '{0:.0f}'.format(p.get_height()), # for one decimal '{0:.1f}'.format(p.get_height()),
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0,0)

plt.savefig("Normalized_WorkerType_InterestLearningMaterial.png", bbox_inches='tight', dpi=300)

```

```

In [ ]: df['LowSkills'] = df.eval("`How would you rate your computational skill
s?` < 3")
df['MedSkills'] = df.eval("`How would you rate your computational skill
s?` in [3,4,5]")
df['HighSkills'] = df.eval("`How would you rate your computational skill
s?` > 5")

df['SkillLevel'] = [0]*df.shape[0]
df.loc[df['LowSkills'] == True, 'SkillLevel'] = 'Low'
df.loc[df['MedSkills'] == True, 'SkillLevel'] = 'Medium'
df.loc[df['HighSkills'] == True, 'SkillLevel'] = 'High'

columns = list(df.columns)
interest_form = [x for x in columns if "For any topic(s) you're interest
ed in, how interested would you be in learning about them in the followi
ng ways? " in x]
melted = df.melt(id_vars=['SkillLevel'], value_vars=interest_form,
                 var_name='TypeOfInterest', value_name='InterestLevel')
melted['Type'] = melted['TypeOfInterest'].replace({interest_form[0]: 'Be
stPracticesArticle',
                                                    interest_form[1]: 'Wr
ittenTutorial',
                                                    interest_form[2]: 'Vi
deoTutorial',
                                                    interest_form[3]: 'In
teractiveWebinar',
                                                    interest_form[4]: 'Of
ficeHours',
                                                    interest_form[5]: '1D
ayWorkshop',
                                                    interest_form[6]: 'Mu
ltiDayWorkshop'})

normalized_preferences = melted.groupby(['Type', 'SkillLevel'])['Interest
Level'].value_counts(normalize=True).reset_index(name='Percent')
#print(normalized_preferences.Fraction)
normalized_preferences.Percent = normalized_preferences.Percent * 100
#print(normalized_preferences.Fraction)
#palette = sns.color_palette(["#F1C6DB", "#DA9EBC", "#C3739B"])
sns.set(font_scale=1.8)
sns.set_style("whitegrid")
palette = sns.color_palette(["#b2a1c4", "#9881b2", "#8166a3"])

g = sns.catplot(data=normalized_preferences, col='Type', x='InterestLevel'
, hue='SkillLevel', y='Percent', kind='bar',
               col_order=['BestPracticesArticle', 'WrittenTutorial', 'Vid
eoTutorial', 'InteractiveWebinar', 'OfficeHours', '1DayWorkshop', 'MultiDayW
orkshop'],
               order=['Not at all interested', 'A little interested',
'Moderately interested', 'Very interested'],
               hue_order=['Low', 'Medium', 'High'], col_wrap=4, height=7, p
alette=palette)

g.set_xticklabels(["Not at all", "A little", "Moderately", "Very"])

```

```
for ax in g.axes.flatten():
    for p in ax.patches:
        ax.text(p.get_x() - 0.02,
                p.get_height() * 1.03,
                '{0:.0f}'.format(p.get_height()),    # for one decimal '{0:.1
f}'.format(p.get_height()),
                color='black',
                rotation='horizontal',
                size='small')
    ax.tick_params(labelbottom=True)
    ax = g.facet_axis(0,0)

plt.savefig("Normalized_SkillLvl_InterestLearningMaterial_C2.png",bbox_inches='tight',dpi=300)
```

In [ ]: